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ILLUSTRATIONS.

Entrance Hall of Residence, Palace Court, Kensington.—Messrs. W. Harvey and Bernard Smith, Architects ..... *Double-Page Photo-Litho.*

St. Michael's R.C. Home for Girls, Waterloo Ville, Hants.—Mr. Leonard Stokes, Architect ..... } *Double-Page Ink-Photo.*

"Rhinefield," Hampshire.—Messrs. Romaine-Walker & Tanner, Architects .....

Chancel of St. Andrew's Church, Heckington, as restored by Mr. James Fowler, Architect ..... *Double-Page Photo-Litho.*

Snettisham Church, Norfolk ..... *Single-Page Ink-Photo.*

Leverington Church, Norfolk ..... *Single-Page Ink-Photo.*

Blocks in Text.

The Custom House, King's Lynn ..... Page 117

Bench-End, Wiggenhall St. Mary 118

Oxburgh Hall, Norfolk 118

CONTENTS.

"Expositions diverses" at the Paris Exhibition 111

Notes 114

Chelmsford Grammar School Competition 116

The Architectural Association's Annual Excursion 117

The Royal Archæological Institute at Norwich 119

Entrance of House, Palace Court, Kensington 121

St. Michael's, Waterloo Ville, Hants 121

Rhinefield, Hants 121

Church of St. Andrew, Heckington 122

Snettisham Church, Norfolk 122

Leverington Church, Norfolk 122

Somerset Archæological Society 123

Death of Mr. J. G. Crace 123

St. Julien le Pauvre, Paris 123

Concrete Floors 124

Scaffolding 125

The Student's Column. Water Supply.—VII.: Percolation and Underground Water 126

Variorum 126

Recent Patents 126

Recent Sales of Property 126

Meetings 126

Miscellanea 126

Prices Current 126

"Expositions diverses" at the Paris Exhibition.

THE vague but comprehensive title of "Exposition diverses" includes all the galleries forming the great square block behind the central dome of the Paris Exhibition, and branching out on either side from the main gallery connecting this dome with the Galerie des Machines. The exhibits included under this heading are mostly such as would come under the heads of furniture and of personal adornment. On the right are sections devoted to furniture, *horlogerie*, bronzes, and ceramic work, &c.; on the left are represented dress, textiles, jewellery, and a small and rather poor exhibit of stained glass. Ironfounders' work and other practical industries also come into the "Expositions diverses," but the main portion is given up to that kind of work which occupies the borderland between art and manufacture, and may be artistic or not, as it is treated.

This portion of the exhibition is of enormous extent in itself, and, of course, a great deal of it is mere shop work, but not without interest even so, as indicating the prevalent taste and fashions of France in various classes of furniture and manufacture; and here and there we come upon work of real artistic interest. The modern Gobelins tapestry exhibits are to be seen in two recesses opening from the gallery that runs round the interior of the dome. They are admirable in workmanship, but mostly mistaken in aim; a great many of the works are landscapes, better done than one would have thought they could be done in tapestry, but mistakes at the best. The purely decorative work consists mostly of panels covered with vases, cupids, and scrolls on a yellowish ground; *rococo* in design and showing very poor feeling for colour. The decorative figure subjects are better, though several of these are far too picture-like and quite wanting in the true characteristics of tapestry design. An exception is the portrait of Henri IV. in the east gallery, a half-length in a circular medallion supported by cupids, the whole very decorative in effect; this is intended for the Louvre. There is also a rather powerful design symbolical of Printing, the principal figure in which is very dignified; this is probably intended for some public hall; it bears as a motto the line—

"Machina multiplicat scribentis munera dextræ."

But on the whole one comes down from the Gobelins exhibits feeling that though the old name be kept up, the old spirit has departed. On the ground-floor underneath the west Gobelins Gallery is the Beauvais tapestry collection, much the same in general taste, but with a decidedly better feeling for colour; more broken, more rich, and less of that dead "self-colour" yellow ground which looks so commonplace in the Gobelins work.

Under the east gallery opposite is the Sèvres exhibit, and here indeed is something to please both eye and taste, both sense of colour and sense of form. There is little richness of colour here, certainly, but great beauty and purity of tones, and a general beauty and refinement of form which gives a remarkable air of distinction to the whole collection. Fancy and originality are not much displayed, but good taste and perfection of modelling and finish pervade the whole collection, and leave a most agreeable impression on the mind.

Passing inward from the dome to the main avenue, the first compartment opening out on the right or west side is that inscribed with the fascinating legend "Orfévrerie"; how fortunate the French are in that picturesque and convenient word, for which we can only say "gold and silver-smith's work." We know pretty well, however, what (from an art point of view) a great deal of the work under such a title will be like in a modern French collection, and enter it in the frame of mind of the American moralist, who suggested as the eleventh commandment, "Expect nothing, and thou shalt not be disappointed." The first stall, the brilliant exhibit of Poussielgue-Durand et Fils (whose high altar for St. Ouen, in the nave, we have already mentioned) shows that the French have plunged even deeper into trade Mediævalism than we have; in a country still Catholic as far as it is religious at all this is natural, and indeed the number of costly and elaborate high altars exhibited (most of them commissions) is one of the special points that reminds us we are not in England. And on the whole our shop mediævalism is better than the French; it is less gewgaw and with more smack of Mediæval feeling about it. Of this latter there is in MM. Poussielgue-Durand's brilliant show about as little as could well be imagined. In Renaissance work the French do of course far better (strange to have to say this of the country that produced the greatest Mediæval buildings of Europe!), and Debain's silver after the Louis Quinze type is very good of its kind. Armand-Calliat, another of the mediæval furnishers, exhibits a tabernacle or shrine presented to the Montmartre Church by the Pope, which has a stamp of originality, especially in the treatment of the four Byzantine-like angels holding up a canopy over the top, their wings stretched out from behind each angle; the designer's name is not given. The same firm exhibit a very gorgeous high altar for Merville designed by M. Cordonnier, the architect; the main feature is a large semi-circular arch over the altar, edged with scroll ornament of Byzantine type, and finishing rather awkwardly in a series of steps above the arch; the interior of the arch is filled up behind the shrine with gilt open-work in an effective manner; but below this it is defaced by imitation metal hangings in sham creases and folds: altogether not a work of much refinement of taste.

Near this exhibit is a small square case in the middle of the floor, which offers an agreeable contrast to the shop exhibits at the side. It is marked with the names of Vernaz and Mdme. Vernaz-Vechte, and contains a few small but precious works in repoussé and ciselé silver, which for grace of design and delicate beauty of execution it would be difficult to beat anywhere. This is artist's work, not exhibited by a "firm." "Who executed this?" we asked of a quiet little woman who seemed connected with the exhibit. "Moi-même." "And who was the designer?" "Moi-même" also. So we congratulated Mdme. Vernaz-Vechte on her work and that of her husband, and recommend those who visit the Orfévrerie Gallery to find it out; they will find nothing else so well worth seeing. It was positively refreshing to come across a real artist and her work after going the round of shop exhibits, each infested by persons on the watch to thrust a trade circular into the hand of any visitor who was incautious enough to be seen looking at their goods. There is another separate case of some interest containing ornamental work in tin struck from bronze moulds specially designed by the artist, M. Jules Brateau. This is very pretty work in appearance, with a great deal of individual character about it; each design is an original one by the author, and is only repeated or struck a limited number of times,

so that without making it as common as ordinary casting (which it quite differs from in sharpness of character), an original design can be reproduced sufficiently to give a comparatively low cost to each example. "We do not keep a shop," said Mdme. Brateau (for here again the lady was the custodian), "we are artists"; and the work justifies the claim, and has a unique character of its own.

Among other exhibits that may be mentioned as presenting some special interest are Brunet's pretty Renaissance altar in marble and metal-work; Lambert's case, in the centre of the room, of damascened work, one metal inlaid on another, and Dufresne's case of *objets de luxe* (also a central case), which contains one remarkable work, the "Coupe de plaisir," a great vase in beaten metal with a figure of a man reclining on the lid and taking grapes offered him by a female figure; below the bowl are Sirens entwined with serpents, and on the base figures of men bowed in chains, the victims of indulgence, with mottoes between—"Cæcus et servus Samson jacet obrutus," &c.; the figures are finely modelled and the whole design effective, and there is a thought embodied in it, which is unusual enough in this class of work. That is the defect of the Christofle exhibit, which is conspicuous in the centre of the gallery; the silver statuettes of rustic figures, marked "Ministère de l'Agriculture," and evidently intended as prizes for some occasion, are pretty objects in their way, but totally commonplace in style and idea, and the whole collection is that of a great establishment for turning out "objects of art"; a very different thing from artist's work.

The next court on the west side is the Ceramic, the façade or screen of which is worth looking at, though a little too gaudy; it consists of an architectural erection in coloured glazed stone ware, with coupled white columns on either side of the central archway, with spiral wreaths of realistic leaves painted and partly relieved on them; a niche on each side holds a figure, placed between the coupled columns, clad in a coloured costume a little too much like Dresden china on a large scale; the figures are, however, pretty in their way: they symbolise Painting and Architecture. In the central avenue, by the way, nearly opposite this court, is a screen or doorway set up representing the work of the "Manufacture Nationale de mosaique," the general design and mosaic decorative detail by M. Paul Sédille, with figures on each side designed by M. Olivier Merson. The figures are on broad pilasters on each side; these are connected by a segmental arch with a rather coarsely-designed cresting as a finish above. The figures represent "Tapisserie" and "Céramique"; the former is a charming design, but the general effect of the whole, and the character of the detail, are not quite what we should have expected from the talent engaged upon it. To return to the Ceramic Court, we find a fine collection of work here, distinctly more permeated by the artistic element than is the case in the Orfévrerie Court. Among the mosaic exhibitors Messrs. Burke & Co. make a good show of decorative work of an ordinary type, but well executed and in good taste. The exhibits of Gilbert Martin and Facchina deal with a more distinctly artistic type of mosaic work; the latter exhibits a good reproduction of a decorative picture of the "Ville de Paris" from the design of the late M. Mazerolle, whose designs are to be seen executed in several decorative processes in various parts of the Exhibition, and who, as formerly noted in our columns, has died since the opening of the Exhibition. Loebnitz's collection shews some fine modelled work of flowers and fruit in glazed terra-cotta, not irreproachable in taste, however; in particular a large stoneware fireplace and overmantel exhibited in this bay, a fine piece of workmanship in itself, is totally spoiled by the detestable trickery of the leafage in realistic colouring trailed irregularly over it.

Among ceramic work in the usual sense the average of work is high, but the most interesting and most truly artistic collection is that exhibited by the Society of "Chambrelans," as they call themselves, of Limoges; an expression which we found was not familiar even to Paris architects and art-critics, but which is adopted by artists trained in Limoges work but who produce the work at their own houses or lodgings, mostly in Paris. Here we have again, as in one or two instances already noted in the orfévrerie section, the personal artistic element instead of the shop; and the difference is equally observable in the character of the work exhibited. Every article designed and made by the "Chambrelans" Society is labelled with the name of the artist, a fact which the member of the Society who acted as their representative was careful to point out. And a great deal of the work here is beautiful, both in regard to fancy of design and harmony of colour, and is worthy of the best period of art. The tea-sets and other articles made by M. Dumontet are especially worthy of notice for the true artistic feeling displayed in them. Here is the work of men who take pleasure in their work, and whose designs show what fine decorative artists are to be found in France among those who have preserved their individuality and escaped being drawn into that wholesale trade production which kills out the very soul of art, and reduces the occupation to a business done for wages and according to the dictates of fashion. The characteristics of the best of this modern work of the Limoges school are fancy and variety in outline, the avoidance of hard and rigid lines, a considerable use of open and pierced work, and the painting over of the surface with powderings of little flowers of various types, many of them drawn and coloured with the greatest delicacy, and of course all hand-work.*

Among the numerous other displays of ceramic ware we may mention some that display special characteristics of excellence. Pull, *père et fils*, have some work that is rather in the style of Messrs. Doulton's ware, and good in texture and colour. Clement Massier, from the Alpes Maritimes district, makes a fine display of lustred ware of really artistic character, good both in form and in decorative detail, and the monochrome vases are very rich and fine in colour. Millet, of Sèvres, makes a specialty of gold *under* enamel, with a very rich effect, and also of a style of decoration imitative of cloisonné enamel; this of course is objectionable in one sense, but if it were not palpably an imitation of another process, or if we did not know the other process, the result must certainly be admired, as the so-called cloisonné lines give a firmness of outline and a vigorous character to the design. Montagnon of Nevers shows a fine collection of ware of a majolica type, blue and yellow as predominating colours. Two very large vases by Aubry form an effective pair, the one showing floral ornament on a white ground, the other design of similar character on a very dark blue ground; the contrast is striking and effective, and the forms finely designed. These are dwarfed in scale again by Greu's immense vase which forms the central object of the room, and stands about 7 ft. high, a splendid piece of work, but more showy than artistic. The exhibition by Fourmantraux runs into Oriental taste in colour and design, the wall tiles being especially good; the "note" of the whole collection is rather that of what may be called the Indian shawl type. The house of Montreux shows good examples of tile-painting of a rather florid type, and that of Emile Levy a very good collection of jars of old Sèvres type, blue with gilt mountings, and painted with figures on panels which are very good; the names of the figure artists (nearly all ladies) are conscientiously given. The exhibition by the Deck firm, near the entrance, is also a fine one, and very rich in colour effect. Altogether, from the artistic point of view, the Ceramic gallery is the most satisfactory part of the "Expositions diverses."

The furniture, a very large collection, occupies the next court on the west side. Two or three of the most sumptuous exhibits occupy bays on either side of the entrance to the court, and facing to the central avenue. That of Damon & Cie. offers only the ordinary characteristics of a Louis Quatorze room carried out in a costly manner; but the exhibition by Charlier & Guenot has some character of its own. They exhibit some remarkably well-made and monumental-looking furniture of a very plain and square type, but which has the merit that it is not an obvious imitation of any past style. These makers also exhibit iron and steel safes, which evince a rather unusual effort to render the outer or screen doors of safes decorative; the large perforated doors of cut and hammered steel to one of these safes form a fine piece of effective design. Jansen's Louis Seize boudoir and bedroom, next to this, is a charming apartment; the prevalent elements are white wood and gilding with a pale blue flowered silk strained as a wall-covering; it is not art, but it is the pink of refined civilisation in the get-up of a room. Of art, indeed, there is little enough in the Furniture Court; it is mostly a "shop" exhibition, showing a great deal of good workmanship, occasionally varied by some originality of method or treatment. Facing us at the lower end of the court as we enter is a huge built-up wooden pavilion, bearing the superscription "Maison Krieger," with a double staircase leading up on each side to a room above. The details of the erection and staircase (meant to be very ornamental) are in wretched taste, but the furnished room at the top, which is the kernel of the affair, is well worth looking at for its original treatment and subdued richness of effect. The walls are silk hung in panels of a low warm tone inclined to crimson, with dark maroon borders; a tapestry frieze with figures runs above; the doors are carved oak; the chairs upholstered with crimson velvet. Light is admitted through a circular stained window in the ceiling. An effect has been obtained of richness combined with repose of tone which is very satisfactory to the eye, and such as would not have been anticipated from the bad design of the staircase leading up to it.

Among the exhibits in the side bays Schmidt & Piollet show that it is possible to combine richness with simplicity in bedroom furniture. It must be observed that the French furnishers (and therefore we presume their customers) still pin their faith to the huge four-post or canopied bedstead which a better perception of sanitary conditions is now sending out of date with us; but this solemn and ancestral-looking piece of furniture undoubtedly gives them a fine opportunity for effect. In the bay occupied by Potheau frères, for instance, is a great ebony bedstead of this type, carved in Renaissance style, and with a flowered coverlid in deep crimson, which at once makes a picture in its way. Louveau shows a great canopied bedstead, suggesting the idea of a state bed, with brown velvet hangings, and elaborate painted landscapes and figures on the head and footboards. Jeanselme & Co. exhibit another, suggestive of Louis Seize work but with some originality, and with the footboard beautifully inlaid with various coloured woods. Two exhibitors may be noted as showing a certain degree of distinctive style in their furniture; Vallet frères, of Marseilles, whose carved woodwork (like some of the antique woodwork in the Trocadéro) presents a combination of Classic and Gothic elements rather happily blended; and Viardot & Co., who have achieved a manner of their own in their furniture design, which suggests the idea of Japanese *motifs* translated into French workmanship. The work is mostly in ebony or ebonised wood with richly-coloured upholstery, and is treated with a fanciful avoidance of symmetry, the two arms or sides of an armchair, for instance, being varied in design; grotesque animals disport themselves with an unconventional ease of manner about

* The Chambrelans de Limoges are represented by their delegate M. A. Gorceix, at 9, Cité du Trône, Paris; and at Limoges at the Place Fontaine-des-Barres, No. 1. We shall be glad if this mention of their work should be the means of bringing to the notice of English amateurs a society of artisans who are doing really artistic work in an artistic spirit, and far superior to what can usually be purchased from general dealers in modern ceramic ware.

the backs or rails of chairs and settees; and so on. The work is really clever, though perhaps the humour of it may seem a little forced.

An adjoining court also dedicated to furniture contains works of a more solid and semi-architectural class, such as Parfoury's sumptuous marble sideboard or buffet. The portion of this above the shelf is formed with three semicircular-headed niches in yellow marble, divided by white marble colonnettes between them; other portions are carried out similarly in variously coloured marbles of monumental thickness and with a general look of great costliness; but the effect lies rather in the quality of the materials than in the design. This court also contains some very elaborate church furniture exhibits by Beer and Desmaret, but not presenting anything of special artistic value. We ought not to forget however, in relation to this portion of the exhibition, the large high altar for Rouen Cathedral which stands in the central avenue near Cavaillé Coll's organ, and is from the designs of M. Sauvageot and executed by MM. Trioullier frères. This is not all bright or gilt metal, like the other altar in the central avenue, but is designed with a white marble base and altar, and a white marble reredos with gilt friezes in the panels, while a brass-work tabernacle and spire rises over the centre. There are side tabernacles and spirelets also, which are rather badly joined on to the marble base; but in general there is no doubt this combination of marble and metal is more architecturally effective than making the whole thing of metal. Whether it looks so effective or brilliant as a mere part of the *ensemble* of the church, when fixed in its place, may perhaps be another question.

The exhibition of tapestries, which is in a court in the rear of the furniture court, is a satisfactory one, and shows that a good deal, at all events, of the modern tapestry work of France is based on good models; in an artistic sense, indeed, the bulk of this work is much better than the Gobelins, which is supposed to be the artistic centre of tapestry work. There are no doubt in this part of the exhibition tapestry landscapes and other pictures which are worse than the Gobelins work of the same kind because, while equally bad in principle, they are not so fine in workmanship; but in general the tapestry work here is truly decorative in character, consisting of large flowing bold designs of conventional foliage, perfectly suited to the capacities of the material. Of course this is rather a prosaic type of design; there is nothing of the fancy and invention that may be illustrated in such tapestry as that of the inner hall at Hampton Court; but it is at all events good of its kind and entirely unexceptionable in point of taste.

The next court is occupied with "Horlogerie," and after looking at the beautiful designs of the old watches in the loan exhibition at the Trocadéro, it is melancholy to find such an almost total want of artistic feeling or interest in this large collection of modern French clocks and watches. We are looking at exhibits, in this article, from an artistic point of view, and really it would be difficult to find an object in this collection which an artist would care to possess for the sake of its design. A clock or timepiece is such a suggestive thing, too, for artistic treatment, that one might expect to find art applied to objects of daily use here if anywhere. But it is not so. Plenty of pretty workmanship there is; but not an idea worth speaking of among the whole. Savoye frères show good taste and a desire for rich effect in their decorative treatment of the backs of watches, though these are nothing more than ordinary scroll-work *motifs*. There are foolish knick-knacks in plenty, such as Farcot's timepieces in the shape of windmills, lighthouses &c.; but in a general way the modern French clockmaker seems to rise to nothing higher in design than a miniature architectural treatment of a timepiece, with Classic columns at the angles. One only original idea we noticed as worth mention, a clock by Améaume in which the dial is a large disc decorated with foliage meandering over it, and with two apertures on it in which appear the figures showing the hour and minute respectively, a figure dropping and another succeeding it each minute; this disc is held aloft by two draped nymphs in silver, not remarkable for design or modelling: still there is a distinctive idea in this, which does not impress one as if merely turned out of a clock manufactory in the ordinary course of trade.

Much the same may be said of the court dedicated to bronzes. With a few exceptions, these are simply *objets de luxe*, a description which applies to the whole show of work by the great fashionable firm of Barbédienne, who have a whole section of the court to themselves. "They have their reward" we presume, in wealth and great patronage; but it is melancholy to look round all their collection of handsome and costly things without seeing one which bespeaks any higher object than to please popular taste and fill up the saloons of wealthy houses in a showy manner, or which looks as if the mind and feeling and enjoyment of the maker had gone into it. In the centre of the Barbédienne territory is their *pièce de résistance* in the shape of a tumultuous and costly clock-case standing 11 or 12 ft. high, built up in architectural stages with various costly materials; but there is no ruling idea or motive in the design; it is simply to make something as elaborate and costly as possible. Behind this is an erection that really is artistic, though in a material that is not costly or "precious"; this is a fountain in wrought-iron by Ferdinand Marron, a really powerful piece of work, rising in a lofty canopy of foliage around uprights with a figure in the centre; some of the foliage work, unfortunately, is too realistic (the constant stumbling-block of clever wrought-iron workers), but this is a fine piece of work done in the spirit of an artist. Among other objects that are superior in type to their surroundings are L. Martin's large silvered vase showing reliefs of figures entwined with scrolls, of fine design and style; Gosset's wrought-iron repoussé work is good; a large stand in the centre of the court is partly occupied by a collection of admirable models in bronze, small size, by More, from the works of M. Fremiet; and the same stand contains some beautiful toreutic work in the shape of figures of birds, &c., executed in silver with great delicacy. The collection illustrating Thiebaut frères' work in bronze castings occupies an important place in the exhibits of the central avenue; this is splendid as an exhibition of bronze founding, which is what we believe it professes to be, the Thiebauts being reproducers of artists' work. The drawback to the majority of the work exhibited in the bronze court is that it is manufacture pretending to be art.

At the lower end of the east side of the centre avenue is to be found, partly in windows in the building itself, and partly in a small room reserved for it, what stained glass is to be seen in this part of the Exhibition; and a poor show it is, considering the occasion. The house of Champigneulles is responsible for most of it; and the only two things of really high interest in the collection are the two of which we have some time ago published illustrations, "The return of Alsace and Lorraine," and a study of a window in early French Renaissance style. There are three Renaissance-looking windows in each transept of the building at this point, containing much white glass picked out with yellow, and with figures of fine bold design drawn in grisaille, very much like some of the windows in this style that have been carried out in the South Kensington Museum, only not so well done. The small room of stained glass is worth looking into for the sake of one or two little pieces in it of special merit. But it is clear that stained glass art in France is not in a very flourishing condition, if this is all it can show in so important an Exhibition.

The galleries on the east side of the central avenue are to a great extent devoted to exhibits which do not come under the class of subjects we are now treating of. There is one court devoted to firearms and sporting exhibits, one to dress (which might come into the region of art but mostly does not), and one to textiles, especially Lyons goods, which occupy naturally a very large space. The general character of these silks and other stuffs implies a general level of cultivated taste—there is little, perhaps nothing, that can be said to be in bad taste; but there is also little evidence of that kind of delight in a noble and free style of pattern design which is the glory of Renaissance textiles, and of which there are at all events more and better examples to be found in England than in France at present. Little attention or interest seems to attach to this part of the Exhibition; the court is usually empty. The most popular by far of all the "expositions diverses" is the court devoted to "Bijouterie." This is a very extensive collection, so much so that one would suppose that every jeweller of any importance in Paris must be represented; an admiring crowd press around the principal cases, the majority women, but with a large admixture of the other sex also. Considering how bad is the taste of English dealers and purchasers in this class of work at present, it would be a satisfaction, in spite of patriotism, to find that there was better and more artistic work to be had no further off than Paris; but it is a satisfaction the discerning visitor will not enjoy. Taking the collection as a whole, it proves that at all events Paris is not in this department of work one iota in advance of the standard of Bond-street. Ladies, we believe, think otherwise; but in these matters ladies have mysterious canons of taste of their own, inexplicable from the point of view of art criticism. The designs to be seen in this immense collection consist merely of the most ordinary devices of arrangements of stones in star shapes, or in imitation of sprays of leaf &c., repeated with little variation and no invention. Here and there are to be seen some silver and gold bracelets, such as those of Savard in "argent ciselé," which are superior to the general run of work; and there is one case by Amant-Benard which shows really artistic work, and in this sense stands almost alone in the collection. These consist of delicate openwork caskets and ornaments in gold and silver, very minutely modelled, entirely in conventional designs of great beauty and individuality, and without a trace of the imitations of leaves &c., which seem to form the highest flight of the bulk of the designs. Some of these are quite Greek in delicacy and refinement, and unlike anything else to be seen in their neighbourhood.

A review of the art work in this extensive quarter of the Exhibition leads, in short, to the conclusion that, while France is at the head of the world in sculpture, and taken all round perhaps in painting also (though in certain fields England may claim superiority), in the class of ornamental work which more than any other forms the gauge of the prevalent artistic taste of a nation, she has no claim to that superiority in artistic taste or feeling which is sometimes thoughtlessly claimed for her. She is a profuse and splendid manufactory of *objets de luxe*, that is all; and that is not art.

Crystal Palace School of Engineering.—Sir Douglas Galton distributed, on Saturday last, the certificates gained by the students in the Crystal Palace School of Practical Engineering. In the course of his address, Sir Douglas reviewed the progress of engineering during the century, dwelling specially upon the increased accuracy of work, which is largely due to the initiative of Sir Joseph Whitworth, to advances in metallurgy, and other circumstances which give new opportunities to the engineer. He adverted to the careful work and thorough training given in the school. The report was read by Mr. Shenton, and showed an increased number of students, and that the successes have been numerous. The examiners of the term were Mr. H. V. Rudston Read, Mr. J. H. Cunningham, and Mr. Leonard Milne.

NOTES.

THE Board of Trade have issued a circular relating to the procedure they intend to adopt at the hearing of objections to the railway classifications. It is satisfactory to learn that the latter are, as far as possible, to be made uniform throughout the United Kingdom. They are already identical in many respects, and the schedule of the London and North-Western Company will be taken by the Board as a representative one,—though only for the purpose of discussing the classification and general conditions. It yet remains to be seen what course will be adopted with regard to the mileage rates; but it would be manifestly unfair to again take the London and North-Western schedule as a basis, seeing that the charges that Company propose to make are considerably higher than those of several of the other trunk lines. It would certainly be a great gain if all the rates could be made uniform as well as all the classifications; but, as the existing powers of the Companies (which vary so considerably) cannot in fairness be altogether ignored, perhaps this is too much to expect. The Board boldly propose to take the subject of station terminals at the first sitting (Oct. 15), and notify that objectors may appear themselves or by any authorised representative. Judging from the general tone of the speeches at the half-yearly meetings, the conferences of the last few weeks have not been altogether fruitless. Lord Colville of Culross, at the Great Northern meeting, said that there was every reason to hope that an arrangement satisfactory to both parties would be arrived at; while Sir Richard Moon (London and North-Western) said that in some few cases objectors have shown no disposition to negotiate; but in many others a willingness has been manifested to assist the Board of Trade and the railway companies in the difficult task imposed upon them, and that satisfactory progress has been made. On the other hand, the Chairman of the Lancashire and Yorkshire (Mr. Armytage) stated that they had a difficulty in finding a recognised body who thoroughly represented all the trades; and pathetically remarked that they were longing for rest and peace, so that they might look after their business without so many interruptions. This would undoubtedly be very welcome to all concerned.

WE have more than once expressed the opinion that the doctrine of "common employment" as barring compensation from the employer for injury caused by one of his servants to another, obnoxious as it is to the working classes and their political partisans, is in itself a wholesome and even necessary enactment to safeguard the employer from being victimised. But we must admit that it may be pushed too far, and this seems to have been the case in the matter of Johnson *v.* Lindsay, heard on appeal before Lords Justices Cotton, Fry, and Lopes. The plaintiff was in the employment of a general contractor on a building on which the defendants, iron-founders, were engaged to fit a fireproof flooring on the seventh story. There was to be a platform at the top of the building for the purpose of drying clothes, and this part of the work was to be executed by Lindsay & Co. The main contractors contracted for the whole work, but they were to provide the sum of 213*l.*, to be paid to Lindsay & Co., "or any other firm approved of by the architect," for this particular work. One of the defendant's men let an iron bucket fall on the plaintiff, causing him serious injuries. The jury found for the plaintiff: 50*l.* damages. The Divisional Court set aside the verdict, and the Court of Appeal upheld its decision by a majority of two of the Judges, on the ground that the defendants were in the employ of the contractors, and that it was a case of "common employment." Lord Justice Fry dissented, on the ground that the defendants were independent contractors. He considered that they were specialists brought on to the job to do certain special work by their own skilled men who were under their own orders, and not under the orders of Messrs. Higgs & Hill the general contractors. The learned Judges who ruled otherwise took the line that the general contractors and the defendants were working together for a common object. No doubt in a sense they were; but the men employed were certainly not under a common employer, and though the case is no doubt a difficult one both in regard to law and justice, it appears to us that there is at least strong presumption in favour of Lord Justice Fry's ruling. The plaintiff was not in the service of the defendants, and the defendants were carrying on independent work, by arrangement, with their own men and (as far as appears) their own plant. They were certainly not, in the ordinary acceptation of words, in the employ of the contractors, and that they were so in a legal sense seems a conclusion very much open to question, to say the least.

A CURIOUS controversy is going on in regard to the tower and spire of St. Michael's, Coventry, which, as many of our readers will be aware, has been undergoing some absolutely necessary repair and restoration under the care of Mr. J. O. Scott. It is now a question whether the tower is strong enough to make it prudent to hang again the peal of ten bells, and the evidence of the architect and the bell-founders seems conclusive that it is not. It has been suggested that the bells should be rehung to chime only, but as a member of the Restoration Committee remarked, "The people of Coventry would not care a farthing rushlight for that"; and they are right. A committee of honorary architects, consisting of Messrs. Ewan Christian, Herbert Carpenter, Jas. Brooks, W. White, and J. P. Seddon, have reported that it would be dangerous to hang the bells unless the north and south windows of the tower, including their internal and external arches, were taken out and replaced by solid masonry, and powerful central buttresses of adequate width and projection carried up sixty feet, as far as the springing of the windows on the second story. The report concludes with an expression of opinion "that it is undesirable that the authentic design of one of the finest towers in England should be interfered with, merely for the purpose of ringing a peal of bells, the hanging of which within its walls the original designers, it is quite certain, could never have contemplated." This seems the common sense of the matter; but Mr. Christian has sprung a rider on his co-signatories dissenting from this "archæological" opinion, and bringing in the authority of Mr. Pearson to the effect that the proposed buttresses and closing up of the windows would be quite a proper course to take. This only shows what an unsafe and capricious guide Mr. Pearson is in such matters. He has been occupied at Westminster Hall in purely "archæological" erections, and now he wants to take the opposite line and entirely alter a famous tower for the sake of hanging bells there. Now if the bells were a necessity, or formed part of the design, there would be reason in this: but St. Michael's tower was not built for bells; it is a work of art, as well as of archæological interest, and to alter it to this extent for such a purpose, especially as a subscriber has promised to give half the cost of a new tower adequate for the bells, seems to us nearly if not quite inexcusable. For the present the matter is in abeyance. As our readers know, we have never supported the purely archæological view of ancient buildings; but this is a proposal to alter and certainly to some extent deform the design of an ancient and very fine tower and spire, for the mere object of hanging bells in it. The Restoration Committee had much better build a new bell-tower, towards which they are offered material assistance, and leave the old tower unaltered.

THE portfolio of drawings of full-sized Greek mouldings and decorative detail, which Mr. Schultz has brought back from Greece, and which we have had the opportunity of inspecting, ought to fully answer the wishes of those who, as notified from time to time in our columns, subscribed to the "Greek Mouldings Illustration Fund" for enabling Mr. Schultz to devote more time than he could otherwise have given to this interesting and valuable work. He has made good use of his time, and brought back a large collection of the class of drawing which was specially desired by those who promoted the work, viz.: the full-size and accurately-taken profiles of Greek mouldings. In addition to this, Mr. Schultz has made a considerable number of carefully realistic sketches in water-colour of portions of Greek masonry showing remains of colour. The texture and lines of the weather-stained marble, and the precise extent and nature of the indications of colour remaining, have evidently been carefully copied, and if some of these coloured sketches can be reproduced in facsimile by chromo-lithography, they will add to the value of the collection, which, when published (as we hope it will be before long), will be a very important contribution towards the illustration of Greek architecture in matters of detail which cannot be said to have been adequately illustrated as yet.

THE curate of St. Edmund the King, Lombard-street writes (in the *Athenæum*) to the effect that whilst the Bishop of London's Commission has not yet reported, a unanimous decision against the church's destruction is confidently expected. It appears that any of the vestries concerned can alter the scheme. "So far, then," he adds, "from the destruction of the church being decided upon, the fact is that, thanks to the noble stand made by the parishioners and congregation, the church is safe. . . . . But, on the other hand, it is not at all unlikely that the Commission may recommend the destruction of All Hallows, Lombard-street." The latter church, which has long served for the united parishes of All Hallows, or All Hallows Grass Church, St. Bene't Gracechurch, St. Dionis Backchurch, and St. Leonard, Eastcheap, was completed in 1694, after Wren's designs, at a cost of 8,058*l.* 15*s.* 6*d.* Nearly hidden by buildings around, and with a not very striking exterior, it contains a beautiful marble font with a cover, from St. Bene't, and some very fine wood-carving, particularly over the two door cases or lobbies, now used as cupboards. The pulpit, its sounding-board, and the lower part of the reredos, are attributed to Gibbons. In the "void" is a handsome trophy of the Royal arms. The ten coloured windows are the work of Mr. Alexander Gibson. The old Lombard-street gateway was removed into the vestibule, beneath the tower, at the south-western angle, in 1865. The organ, by Harris (1695) was rebuilt by Gray & Davison, together with the restoration of the fabric by Messrs. Francis, architects, in 1870. The interior had been "repaired and beautified" in 1847; in 1880 it was re-decorated, and lighted from the roof. The parish stands in the three Wards of Bishopsgate, Bridge, and Langbourne; the benefice, now worth about 700*l.*, is a "peculiar" of Canterbury, having been given to that See by one Brightmer, in 1053, under name of Gerscherche. The old church was rebuilt by John Warner, sheriff, in 1494, and his son Robert. Here, after service on Good Friday, is observed the will, dated April 24, 1586, of Peter Symondes, citizen and mercer, by the gift to sixty of the younger Bluecoat boys of a bag of raisins and a new penny. A Bible (1613), together with Erasmus's Paraphrase on the New Testament, in 2 vols. (1548-9), are relics from the Great Fire which destroyed St. Bene't's Church. The interior is almost a model, in practical qualities, of a church for congregational worship, besides containing much fine work in detail; it would be a thousand pities it should be destroyed.

WE hear that the new palace for the Gaekwar of Baroda, which was designed by the late Major Mant, of the Royal Engineers, and which has been already eight years in course of erection, is now approaching completion. According to the *Indian Engineer*, the exterior portion of the edifice consists exclusively of stone, being described as in "the late florid style of Upper India," with a large element of Gujerati details. The proportions are immense, the façade having a total length of 500 ft., while the Durbar hall, with its flat roof, presents a clear span of 54 ft., and is thus one of the largest in India. This apartment is adorned with an elaborate enamelled-iron ceiling, executed in coloured arabesques, separated by moulded gold ribbing. The floor and walls will be inlaid with marble and enamelled mosaic work, on account of which a number of Italian workmen have been specially engaged to perform this part of the undertaking. Messrs. Damon & Cie., of Paris, have been instructed to carry out the task of ornamenting several other apartments in the interior. The total outlay is estimated at 250,000*l.* (exclusive of the rich interior decorations), thus forming one of the most costly and extensive modern buildings throughout the whole of India. So far the information of our Indian contemporary; but as to the real artistic quality in a building designed by an English engineer and furnished by a firm of French fashionable upholsterers, we may be permitted to entertain much misgiving.

IN Freebridge-Lynn hundred, and within a few miles of Castle-Acre, where extensive explorations have been undertaken, stands Middleton Towers, which, together with an estate of 711 acres, is placed in the market. The house, restored and enlarged in 1860, stands about four miles distant from Lynn, by the road to Swaffham. Formerly known as Tytherington Hall, it was originally built *temp.* Henry VI. by Thomas, Lord Scales, K.G., a distinguished soldier in our wars with the French. The Middleton property passed to the Woodvilles by the marriage of his daughter Elizabeth to Anthony, Earl Rivers. The Lords Scales had been settled here since the reign of Henry II., when Roger de Scales married Muriel, daughter and co-heiress of Jeffrey de Lisewis. Roger and his wife brought a band of monks to Middleton, then called Shiplade, and established them, together with some religious women, in the now ruined Blackborough Priory, in the vale of the river Nar. Their son, Robert, re-dedicated the priory to the the Virgin and St. Katharine, and settled it upon a party of Benedictine nuns. At the suppression the property was valued as being worth 76*l.* 3s. 9d. a year. Edward VI. granted it to the bishops of Norwich. A view of the moated tower will be found on the title-page of the "Beauties of England and Wales," vol. xi. (1809).

IN the current number of the *Portfolio* the pen-and-pencil illustrations of Westminster Abbey, by Mr. Loftie and Mr. Railton respectively, are continued, dealing in this number with Poet's Corner and the Chapter-house. Of the interior of the Chapter-house Mr. Railton contributes a full-size plate which rather exemplifies the danger into which his style of handling is apt to betray an architectural artist, of making artificial effects of contrasted light and dark; the central pier being represented in a patchwork of black and white which is far too forced. The number is headed by an appreciative article on the sculpture work of Mr. Roscoe Mullins, by Mr. Walter Armstrong, illustrated by a small illustration of the Preston pediment sculpture, and another of one of the sculptor's most graceful works, the statuette entitled "Memories." It is odd, however, that Mr. Armstrong should have omitted all mention in the article of what was not only one of Mr. Mullins's best works, the "Esau and Isaac," but the one which first gained him a central position and a great deal of public notice at the Academy Exhibition.

A REPORT by Mr. Spear to the Local Government Board (June 27) on the causes of fatality from croup and other throat affections in the Horwich Registration sub-district, reveals a truly delightful state of things in regard both to sanitary conditions and sanitary legislation. Horwich is, it appears, a town recently developed from a village, owing to the formation there of extensive locomotive works for the Lancashire and Yorkshire Railway: and this is the kind of way in which it has developed:

"In effect, whole streets and rows of houses stand in a perfect sea of mud and slush, sewage still trickles in foul gutters over the bare surfaces, and so little regard has been paid to the enforcement of the local building bye-laws that important sanitary requirements in the construction of new houses have been habitually infringed. . . . . The main highway of the town, paved or macadamised, is in most places in a state of great dis-repair and full of holes, a condition which leads to much lodgment of moisture. Of some seventy to eighty private streets only five had, up to April, 1889, been 'metalled, paved, and channelled,' although I was told that, according to contracts entered into by the Authority 22 should have been completed in the previous October. Even these few completed streets, owing to the passage on to them of traffic from excessively miry surroundings, and to defective scavaging, were on my inspection only distinguishable from the rest by the absence of the deep ruts and holes into which the muddy surface of the latter had been ploughed. As to many of these latter, it is no exaggeration to say that access to the houses could only be gained by wading for considerable distances ankle-deep in slush,—a mode of progress only occasionally to be avoided by the use of the insecure stepping-stones which the inhabitants had laid down. . . . . For excrement disposal privy-middens are in universal use, and even in the newer property these receptacles are so constructed as to present all the chief faults of the old-fashioned middenstead. They are of large size (about 8 ft. by 4 ft.), sunk some 3 ft. below the level of the ground, and of porous material. Excavated in a damp soil, they are not unfrequently flooded to over-flowing with surface water, and where this is not the case their contents are habitually wet. They are emptied at irregular intervals by contractors in the service of the Authority. The solid contents are thrown on to the bare surface of the back lanes to await the arrival of the scavengers' carts, while the liquid remains in or about the middenstead. The people generally complain much of this state of things, saying that they are prevented from opening their back doors and windows by the foul odours. One woman, living in Autumn-street, quite a new street, but one that has already suffered much from preventable sickness, attributed her indisposition, from which she was just recovering, to the excessively offensive condition of the back premises of the dwelling, and these I found on inspection were partially flooded by liquid oozing from a neighbour's middenstead.

The dangers to which the inhabitants of the newer localities are exposed in this connexion might have been avoided had the Authority paid the least attention to the enforcement of their own bye-laws, for by the latter (confirmed by the Local Government Board in July, 1886) a proper and safe method of privy construction is duly prescribed. So little, however, do the Authority recognise this, that in order to obviate, as it is supposed, the intolerable nuisance of a flooded middenstead, the futile and long since discredited plan of *draining* that receptacle by a drain communication with the common sewer has of late been proposed, and this although the plan is expressly forbidden by their own bye-laws."

ANOTHER report by Mr. Spear (July 9) deals with the sanitary condition of the Hoo Rural Sanitary District, and is nearly as bad reading. Here, we are told, deep privy pits or large sunk midden-privies are almost universally used for excrement and solid refuse disposal. In many cases they are situated close to the dwellings. The condition of one street, "Wilson's-row," has been gibbeted in a former report. Mr. Spear says:—

"Its condition still is deplorable. The huge privy-middens at the rear are, for the most part, in a ruinous state, and filth of all sorts is littered about the unpaved surrounding surface. The houses at the further extremity are beyond the reach of the drains, and the liquid sewage trickles over the bare ground into foul pools, while at the other extremity of the row the drain connexions are of such a nature,—dilapidated surface channels leading to one or two gully gratings,—that the same result is arrived at. The gullies, moreover, are said to be as often stopped as not, and accordingly a large proportion of the liquid sewage is thrown over the bank of an adjoining clay pit. The contents of the privy-middens, too, have been emptied down the banks of this excavation, so that the latter, which comes close up to the house yards, presents the appearance of a filthy swamp. Wilson's-row is divided into three sections. The well of one is said not to afford good water, and there is evidence of trickling down the sides from the surface; that of another to afford water that "stinks horribly"; and the third section (sometimes, I believe, called "Broad's" Row) is not provided with water. The inhabitants are left to obtain water where best they can, and for the most part a neighbouring public-house is resorted to."

In another paragraph of the report, we read again the tale of official indifference and carelessness:—

"The Authority have made no provision anywhere in the district for refuse removal; and their failure to secure any amelioration of the filth nuisances that prevail must be ascribed chiefly to this initial mistake. . . . Another principal cause of failure has been the complete absence of any proper organisation in the sanitary machinery of the district. The Medical Officer of Health and Inspector of Nuisances never inspect the district in company; they never confer together as to the sanitary condition and requirements of the district; the Inspector never reports for the information of the Medical Officer of Health, and when the latter himself reports nuisances to the Authority, the Inspector, looking at the nuisances from his own point of view, seems not infrequently to make light of conditions regarded by the Medical Officer as injurious to health."

WE referred, in a "Note" in our paper for April 6 last, to the ingenious though simple invention, patented by Mr. Arthur Pickard, of canals on a new principle,—the principle, viz., of an induced current imparted to the water by fixed paddle-wheels or screws. By this induced current the boats are carried along without resorting to propulsion or traction, and as they can be locked up, they require no boatmen or attendants. As we explained in our former "Note," the canal is made with a double channel, each 4 ft. or 5 ft. wide,—just wide enough to take one boat,—the boats being fitted with friction rollers to prevent jamming. The induced current is continuous on each division of the canal,—up one side and down another, one motor only being required for each level. Since our former "Note" was written, we have seen a report which has been made upon Mr. Pickard's system of canal navigation by Mr. Thos. M. Rymer-Jones, M. Inst. C.E., who estimates that "the power required by centrifugal pump or marine screw to generate a current flowing at the rate of three miles an hour, in a channel 4 ft. deep by 4 ft. wide, and one mile in length, will not exceed 10 h.-p., and each succeeding mile will require ¼ of one h.-p. extra, or a decrease of speed in the same proportion. This is irrespective of the number of boats put upon it." As the boats can be fitted with trolly-wheels, they can be hauled overland to quarries, collieries, factories, &c., for loading and unloading. Mr. Pickard's system of navigation is, as we have already pointed out, capable of application to existing canals. When we wrote last, we had only had an opportunity of seeing some working models of the invention. The favourable opinion which we then formed of its practicability has been confirmed by a visit to the Alexandra Palace, where a company called the Venetian Canal Company have constructed a working canal on Mr. Pickard's system. This small canal, it should be mentioned, is intended only for pleasure traffic, and as such ought at all events to prove a more popular entertainment than the steam round-about. The canal, which is 218 yards long, has a uniform breadth of 4 ft., and an average depth of about 18 in. The entire mass of water is kept in motion by a small stationary upright engine of 1-horse power, working with 200 revolutions per minute. This actuates a paddle-wheel of 9 ft. in diameter, making eight revolutions per minute, the induced current resulting from which carries the boats round the circuit of 218 yards in a period of four minutes. Boats holding from four to six passengers each are conveyed on this current. Three such boats were during the Bank Holiday week in pretty frequent requisition. This canal is, from the necessities of the case, a single continuous one, being an irregular

circle on plan, and consequently it differs in some of its arrangements from an up-and-down-line traffic canal; but it clearly shows the practicability, on a working scale, of Mr. Pickard's invention, which seems likely to play an important part in the future of water-transport.

THE ruling of the Court of Appeal in the case of Cornish *v.* The Accident Insurance Co., sad as the case is, ought to act as a wholesome warning to persons who omit to take common precautions for their own safety. The plaintiff was the widow of Mr. Richard Cornish, farmer, who had insured himself for 1,000*l.* in the Accident Insurance Company in case of death caused by personal injury. The policy contained an exception "in the case of death happening by injuries received on the exposure of the insured to obvious risk of injury" (we take the wording from the *Times'* law reports, we do not know whether it is textually that of the Insurance Company's proviso). The deceased was a farmer owning land on both sides of a railway, and in crossing the railway at a place where there was no proper crossing, had just put his foot on the down line when he was aware of a train close to him, and the poor man was knocked down and killed. His representatives claimed that it was an accident such as was covered by the insurance, and as an argument it was adduced that an up-train had just passed and that the attention of the deceased was diverted thereby from the other line. It was contended also that the clause only referred to wilful running into danger. The Lord Chief Justice in the original case told the jury that the danger would be "obvious" if it was such as "ought to be present to the mind of a man of ordinary sense and prudence." The jury found for the company, but under a certain degree of protest that they bowed to the ruling of the Judge. The Court of Appeal, however, has taken the same view as the Chief Justice, that the deceased was not protected against risk which would have been obvious if he had taken care, "for if he had looked he could have seen the train was coming." There is no question the ruling was right in common sense and justice; but we constantly hear of people being killed or injured on a railway because they look along one line to see if it is clear, and not along the other. It seems incredible that a considerable proportion of mankind should be so unfit to take care of themselves as this fact implies; but it certainly is so. Except at a large junction station where no sensible man would think of crossing the metals, there is no reason whatever why any man with eyes in his head should be run over in crossing a railway; and to call such an occurrence an "accident" is a perversion of language. The lesson applies strongly to men engaged in the building trade, who are no doubt exposed to extra risks in their ordinary occupation, but who are constantly meeting with "accidents" (and expecting compensation for them) which are the result not of extraordinary risk, but of extraordinary carelessness.

The Nicaragua Canal.—According to advices from Greytown, work upon the Nicaragua Canal is now actively progressing, nearly 1,000 men being employed, for whom barracks have been erected. The topographical survey of the Canal from Greytown, on the Mexican Gulf, to Brito, on the Pacific side, has been fully completed by Admiral Daniel Ammen, president of the canal company. The exact length will be 179·67 English miles, of which only 28·89 miles have to be excavated, and 3·07 miles blasted through rock. The natural water way will consist of 64 miles of the river San Juan and 56½ miles of the Nicaragua Lake and some adjacent rivers. The engineers estimate that the Canal will be completed in 1894.

New Crematorium in Sweden.—A new crematorium,—the second in Sweden,—is now being built at Gothenburg.

CHELMSFORD GRAMMAR SCHOOL COMPETITION.

THE picturesque and quiet-looking old county town of Chelmsford, like most other places, has been making progress in the last half-century both in population and prosperity. It has now a Mayor and Corporation,—the Mayor, by the way, is a well-known architect,—the old parish church has been "restored" and considerably enlarged, and several new churches have been built; the buildings of almost all the old public institutions have been either considerably enlarged or pulled down to make way for something bigger and more modern; and now it is the turn of the old "King Edward the Sixth's" Grammar School. The old school stands in grounds of its own, surrounded by high walls, and located between the railway and the town in a very "central,"—perhaps for the purpose rather too central,—situation.

The old buildings are to be pulled down to make way for a school on a more modern plan on some other part of the same site. It was proposed to find another site elsewhere, but that idea is said to be now abandoned. The advertisement for a public competition of architects has resulted in only thirteen sets of plans being submitted. A good proportion of these, however, are of great merit, and there can be no great difficulty in picking out one for execution, though in one sense it would be easier to pick out two. In our opinion the two designs under the mottoes "Salus" and "St. George" are superior in plan, and also in plan and external architectural treatment combined, to the others, but their merits as between themselves are so equally balanced that the arbitrator—if there is to be one, of which we are not certain—will have some trouble in choosing between them. The site is of irregular shape, bounded by a road on the west and south. The old school is in the north-east corner and the property of the George Hotel cuts into the ground at the east end. The best frontage is on the west side, and most of the competitors have placed their building close to that side and facing the road, partly, at least, one may presume, because it would be best seen there. "Salus" and "St. George" have both chosen this position, but it does not appear so good as that proposed by several other competitors near the north side of the ground and facing south, with the play-field in front and the existing pretty old garden adjacent to the master's house on the east. This position seems the more quiet and sunny, and also gives facilities for servants' and working entrances in the rear without cutting paths across the play-field or garden. As might have been expected, where the site is open and the instructions not very binding or explicit, there is a great variety of treatment in the designs in plan and style, as well as in aspect. Several competitors have sought to economise space, and probably money too, by the obvious, and seemingly neat and practical, expedient of putting the large school-room or assembly-hall over the three class-rooms and the corridor connecting them. More perhaps have chosen this plan than any other. Others have put both hall and class-rooms upon the ground-floor, and more or less in connexion with each other. Only three have chosen the now usual arrangement of class-rooms opening out of the assembly-hall.

"Salus" is one of these. In this design the school proper is to the left, or north, of the main entrance, and the master's house to the south, while the school dining-room is in the rear, beyond the staircase to the dormitories and opposite to the entrance; and the dormitories, which are for twenty boys, are symmetrically arranged in two rooms for six beds each and two for four each on the first floor over the dining-hall and the middle of the building generally. The planning of these dormitories, each with its lavatory and linen-store, and with the assistant master's bedroom in the middle, and the bath-room and water-closet conveniently placed at the head of the stairs, is an especially good feature in an excellent design, and deserves to be noticed first. On the ground-floor, to the left on entering, is the assistant master's room, and immediately beyond it the assembly-hall, 50 ft. by 22 ft., with the three class-rooms, each for thirty-two boys, opening out of it at the further end, near the day-boys' entrance and cloak-room. The class-rooms are well lighted from the pupils' left and fitted with dual desks, and are capable of being overlooked from the assembly-hall. In a well isolated position, over the day boys' cloak-room and two of the class-rooms, is the chemical laboratory, with the usual fittings, and reached by a staircase beside the playground entrance. The chief defect of the plans is the provision of a very small open court between the master's house and the boarders' cloak-room, it is surrounded by buildings, and is but 11 ft. wide; it, however, only lights subordinate apartments and the buildings on the east side are only one story high. The kitchen and servants' quarters are at the south-east corner of the building, well placed between the house and the boys' dining-hall. The elevations show a quiet and characteristic-looking building of red brick with stone dressings, of late Gothic type, with a stumpy square tower over the main entrance and a rather elongated turret on the roof of the large hall. The perspective drawing is rather weak and timid in colouring, but in other respects the drawings are exceedingly well executed and finished.

The design submitted by "St. George" is very similar indeed in arrangement to that of "Salus." An extra class-room is provided, apparently chiefly for the sake of symmetry, but it might well be omitted with the advantage of getting a little cross ventilation in the assembly-hall. The day-boys' cloak-room is rather larger than in the other design, and the unnecessary extra exit to the playground is omitted. The chemical laboratory is similarly situated. The dining-hall, instead of being in the rear, is to the right of the entrance, throwing the master's house further to the south, spreading out the plan a little but getting rid of the crowded arrangements that resulted in the contracted little courtyard.

The dormitories are again in the middle of the building, but not so symmetrically arranged; their planning is certainly not so attractive, but there is nothing to condemn, and in practice the difference in convenience would probably be unnoticeable. The elevations of this design show a picturesque, simple, and suitable building of red brick, with a little stone, without any prominent feature, unless an unpretentious little turret on the hall roof can be called so, but well grouped and having a piquant and pleasant originality of treatment that fully make up for the loss of the traditional tower. These drawings also are well executed, and the pen-and-ink perspective especially is a clever and artistic piece of work. Of designs of the type in which the assembly-hall is placed over the class-rooms, that by "Discipline" is one of the best. The building is placed on the north side of the site facing south, with a good open space in the rear, a gravelled playground on the west, or school side, the master's garden on the east, and the playing-field in front. The boarders' accommodation—the dining-room on the ground floor and the dormitories on the upper floor—occupy the middle of the building; the school, with its own entrance, is on the left, and the house and its entrance on the right. The class-rooms are well arranged and lighted, and are put in ready communication with the assembly-hall by a good staircase. By separating the class-rooms from the hall any disturbing of the occupants of the latter by passing through it to the rooms is avoided, and the arrangement, especially at examination times, may often be advantageous; but the other system has other advantages, and seems to be now pretty generally accepted as the best one. The plans in other respects are well thought out, and the elevations show a particularly picturesque and well-balanced group of buildings, having a ground story of red brick with a little stone, and a stuccoed or rough-cast upper story with well-proportioned and pretty gables and dormers; the white upper story is, perhaps, more suggestive of homeliness than of culture, and therefore more suitable for a dwelling of some sort than for a school having a semi-public character, but it relieves and brightens the brick and gives a good deal of character, if not quite of the most suitable sort, to the building.

Another design on which a considerable amount of thought has been expended is that under the motto "Jacobus." Unluckily, the care of the author and his general skill do not seem to have been supported by an adequate knowledge of the usual arrangements of a grammar-school. His plans seem to be founded rather upon those private schools which are more adjuncts of the master's house than the principal and essential part of the group of buildings. The house occupies in this design the most prominent corner of the site, and the

school proper is a two-storied building behind it. The plans are ingenious and the elevations good and suitable, but the whole is founded on a wrong type. The drawings are well executed.

"Edward VI.," like the two last, places the hall over the class-rooms, the plans are carefully thought out, the elevations simple and suitable, and the drawings nicely finished. "Lux" (in a rectangle) has adhered to the ordinary type of plan with the class-rooms opening out of the large room; they are well planned and well lighted and ventilated, but the hall seems unnecessarily and disproportionately long, and the laboratory, which is placed over it, is the same, although a room for which no definite use could be found has been taken off the end. The day-boys' entrance has to be reached by going all round the hall and class-rooms to the back, and part of the way up a very narrow court recessed into the back of the building. In most other respects the plans are decidedly good and of a practical working kind, but the elevations are very plain, and certainly not good or architectural enough for the kind of building.

The set of drawings signed with a monogram "E. R." in a circle, do not indicate much acquaintance with school-planning. Not that, taken altogether, the design is a bad one. The building is well placed on the site facing south; the assembly hall and class-rooms are both on the ground-floor, and connected by a corridor; but what is practically the main entrance is crowded up into a corner in an extremely undignified and rather inconvenient way, and the elevations are only remarkable for a rather ecclesiastical-looking turret on the hall roof.

"Lux" shows some well-grouped and picturesque elevations, with some good detail, but the drawings are badly coloured, and the plans not good.

"Straight and True" exhibits a strong coloured perspective. "Experientia's" design is of the Early Gothic type that might have found favour some years ago. The other sets of drawings do not call for special remark.

A Canal through France.—The Paris Correspondent of the *Daily News* says that according to the *Estafette* a project is on foot to dig a maritime canal from Bordeaux to Cette, and by means of canals to unite the Rhone, the Saône, and the Seine. If carried out, vessels of heavy tonnage, as well as torpedo-boats and swift cruisers, will be able to traverse France in safety from the English Channel to the Mediterranean.

THE ARCHITECTURAL ASSOCIATION'S ANNUAL EXCURSION.

THE twentieth annual excursion of the Architectural Association has during this week been made to the "Marshland" district, that peculiar tract of country in the north-west corner of Norfolk, extending also into the adjoining county of Cambridge, drained by the lower reaches of the Great Ouse, and the artificial feeders or "dykes" which form its tributaries and redeem the desolate waste of fen for the purpose of agriculture. Architecturally this district is rich, especially in ecclesiastical work, hence the programme for the year is notable for the large number of churches included. The headquarters of the party were stationed in the ancient town of King's Lynn, or, as it was called until the time of Henry VIII., Bishop's Lynn, from its former subjection to the see of Norwich. The members assembled on Saturday and Sunday last, the time, until the commencement of the official programme on Monday morning, being spent for the most part in the exploration of Lynn and its immediate vicinity.*

Monday.

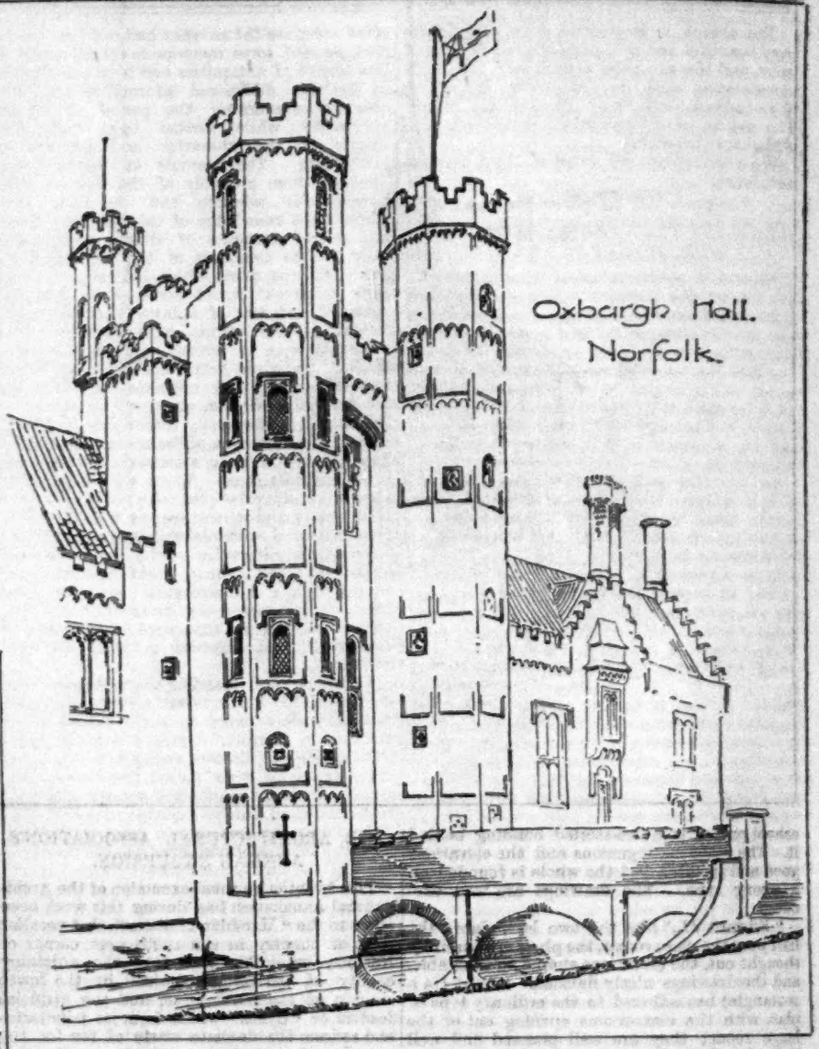
The first start of the excursion was made in most unfavourable weather, the day being for the greater part wet and cold. The first visit was made to three of the Wiggenhall churches, St. Germain, St. Mary Magdalen, and St. Mary the Virgin. St. Germain is a Perpendicular church, with nave, north and south aisles, and aisles also to the chancel. The lower portion of the square tower is Early English, and so also is the tower-arch to the nave; the upper part is of Perpendicular date, with battlements and pinnacles. The great feature of interest in this church is the fine series of fifteenth-century seats, richly carved with figures and foliage, some of the poppy-heads being especially worthy of study. The pulpit is a good Jacobean example, while the lectern and prayer-desk have also been made up from fragments of seventeenth-century carved oak. The nave-roof is of the same date as the church, though plain in character. As in many of the churches of the district, a sanctus-bell cot exists here.

The Church of St. Mary the Virgin was next visited,—a large church with aisles to both the chancel and the nave, which latter is of five bays. The church exhibits the transition from Decorated to Perpendicular in the greater part of its detail; the lateral doorways, both north and south, being, however, very excellent and interesting examples of Early English work. The south porch is of Decorated character, with pointed barrel-vault of stone, carried on moulded ribs. A notable detail of the porch is the somewhat curious treatment of the external angles, with canopied niches on the splay corbelled over to the square above. Like that of St. Germain, this church possesses some very fine, well-preserved carved seats, rich in detail and figures. In these the monogram V.R. (*virgo regina*) is repeatedly worked in. The old fifteenth-century rood-screen has been cut down to the transom, but still retains its figures and coloured decoration, while the stair to the loft also exists. In the chancel is a piscina, and, in lieu of sedilia, a window-seat for the clergy,—a feature found also at St. Germain and other churches in the district. The pulpit is of the seventeenth century, and so also the somewhat curious wooden font cover, dating 1625. The south chancel aisle is screened off as a chantry, with piscina, the existing screen being, however, reconstructed with fragments of old fifteenth-century pointed work. Here is a fine alabaster tomb of Jacobean date, with recumbent effigies, to the memory of Henry Kerville, and Winifred, his wife. Other objects of interest are the beautiful brass eagle lectern, dated 1518, and fragments of old painted glass and fifteenth-century carving. The tower is a good Perpendicular example, with staircase turrets at both the north-west and south-west angles,—another feature by no means uncommon in the district.

The Hall at Wiggenhall St. Mary was also visited, but is of slight interest, being principally a modern structure based upon the old gateway illustrated by Cotman. The Church of St. Mary Magdalen is both large and, for its size, lofty, the nave arcade, of the Decorated period, being especially noticeable for its fine proportion. The clearstory and aisles are Perpendicular, the aisle windows being particularly good and of large size, thus giving great character to the design. The chancel has a marked deviation from the axial line of the nave, and, as is most general, the inclination is to the north. The nave roof has been reconstructed from the fragments of the old, and covered with oak boarding and lead, thus perpetuating a mistake of which no modern architect should be guilty, the result being that the lead, acted on by the tannic acid of the oak boarding, has been and is falling to the floor in white powder. The aisle roofs have not been restored, and at the time of the visit the water was pouring through in a most lamentable fashion. In the chancel are three sedilia, with piscina and aumbry, the latter in an unusual position on the south side. The old stone altar slab still exists, and now forms part of the paving of the sanctuary, the five crosses clearly visible, and, curiously, the two at the north end are 11 in. from centre to centre, those at the south 12 in. Fragments of the old rood-screen remain, with painted emblems of the four Evangelists, and there is the unusual feature of two stairs to the loft, one at each side of the chancel arch, and with their door openings at different levels. These stairs are carried up externally above the roof, and the turrets with their pyramidal roof enhance the external effect. The south porch has the stair remaining which led to the parvise, though the floor of this is gone. There is some good screen-work at the west end of the aisles, some very fine fragments of old glass in the north aisle windows, and remains of a fresco of the Last Judgment or Doom over the chancel arch. The tower is large, and of good design.

The next place visited was West Walton, where a long stay was made for luncheon and the study of the church, well-known for the beauty of its Early English detail, and interesting archæologically from the evidence of the work of the Decorated and Perpendicular builders in buttressing up the falling work of their predecessors,—as for example in the Decorated buttresses internally to some of the piers of the north arcade, and the immense external Perpendicular buttresses at the west end. The majority of the existing windows are Perpendicular, as is also the nave roof, which, in its total disregard of the lines of the older work, is very curious. Especial features are the Early English porch and the majestic bell-tower, the detached position of which in this instance affords a testimony to the most probable explanation of this not very uncommon arrangement. The weakness of the foundations, which have crippled the church, would have been doubly disastrous if so massive a tower had been erected in connection

* Details from St. Margaret's, King's Lynn, will be found in the lithographs published in our last number.



nexion with the building. Still in the neighbourhood of the Roman sea wall, from which Walton also derives its name, Walsoken was the next objective point, the church of All Saint's* being a remarkably interesting example of Late Norman work, with a nave arcade of seven bays. The Transitional character of the work is shown by the inverted "volute" and the pointed shape of the chancel arch. Especially noteworthy is the Norman piscina on the south side of the chancel. The clearstory has been added in Perpendicular times, when, too, the aisles appear to have been rebuilt, the roof of those to the chancel being especially richly treated, with bold carving. The nave roof is curious on account of the apparent dip of the hammer-beams, caused by the flatness of the pitch. The tower is Early English, with a good Late Decorated belfry and spire. Good screens remain to the aisles, the southern one being especially interesting. The old choir-stalls still remain in their original disposition, returned against the screen at the west end of the chancel. There are also some good nave seats, with figures and carving. There is an exquisite octagonal Perpendicular font, richly carved with the representations of the Seven Sacraments and the Crucifixion. The sanctus bell-cot of this church has the remains of a Calvary.

The next halt was made at the church of SS. Peter and Paul, Wisbech, the largest visited during the day, remarkable for its four-aisled plan, the ridge of the main roof being over the central arcade. The north arcade and part of the south of the original Transitional nave exist, and a curious treatment connects it with a wider chancel of Decorated date. The south arcade of the nave is of very Late Perpendicular, the south aisle Decorated, and the outermost aisles to the north and south Perpendicular. There is a good brass of Thomas de Braunstone, who died 1401, Constable of Wisbech Castle, built by William the Conqueror, but now no longer existing; and some fragments of old stained glass. The tower is at the north side, and remarkable for its size and fine design of Late Perpendicular work.

Leverington Church (see lithographic illustration) was the object of the last visit of the day. The church is interesting from its tower and spire, of excellent character, and the picturesque Late Decorated southern porch, with its vault and stone-roofed parvise. The church is mainly Perpendicular, with Early English chancel, in which is an example of sedilia in three steps, and of simple treatment.

Tuesday.

The first visit was to Middleton Towers,—a moated house, of which the central block only is ancient (having formed the gatehouse of the castle built by Lord Scales). The whole having been very much neglected and ruined before the rebuilding of the house, there is not much of interest beyond the example of fifteenth-century brickwork and a good oriel window.

East Winch church was next glanced at, a Perpendicular church which has replaced the Early English structure, of which some arches still remain in the chancel. There are good roofs to the chancel and aisles, some old benches, a chained bible, and some interesting monumental slabs of mediæval date, with floriated crosses, one bearing the emblems of the mason's gavel and square. The church has a good tower, on which the Union Jack was flying in honour of the visit.

West Bilney, the next church on the programme, proved the disappointment of the day, so a stay of two minutes only was made, the most enthusiastic sketchers of the party being unable to find more than the moulding of the North door to note.

Pentney, the next item, was omitted from the programme, and the party proceeded to Narborough, the Hall being first visited, for the sake of the good panelled room on the first floor, with its linen panels and Classic detail, the date, 1581, with the legend "Homo Bulla" and motto "Quand Dieu Voldra," showing that it was carried out during the time of John Spelman or his immediate successor. The church of All Saints has much interest, consisting of a nave of the transitional period from Decorated to Perpendicular, with aisles north and south, chancel, tower, and south porch. There are some fine brasses and other memorials of the Spelman family, some old benches with their arms, and a window seat for clergy in place of Sedilia.

Castle Acre was next visited, both for the Church and the Priory. The Church is large, with a good tower and of the Perpendicular period, some of the old Early English and Decorated pier-caps being re-used in the nave. Good examples of colour decoration remain on the screen, pulpit, and prayer-desk, this last being apparently constructed from fragments of a screen. There is a very fine Early English priest's door, and the remains of a double piscina. The Perpendicular font has a lofty and beautiful cover of elegant design, decorated with colour and gilding. There is here the somewhat curious feature of a hagioscope from the vestry to the chancel. The Priory, founded like that of Lewes, by William de Warenne, belonged to the Cluniacs, and is a remarkable example of Norman work. The plan can be easily made out, the position of the church, chapter-house, cloisters, refectory, &c., being readily discernable. The prior's lodging contains an oratory in which are several features of interest, added apparently by different priors, such as the Early English window with semi-circular rear-arch, the Decorated single sedilium, frescoes on the splays of the windows and brick altarpace, with the position of the altar marked. A fine oriel window was added to the prior's parlour in the fifteenth century, and here too is the lavatory sink for his private use. The arms of De Warenne are found here repeatedly.

Swaffham was next visited, and a short stay made at the large Perpendicular church, with its magnificent fifteenth century roof. This church has transepts to the chancel and a smaller transept to the second bay of the south side of nave. On the north side of the chancel is the founder's tomb, with effigy of John Botewright, chaplain to Henry VI., who built the chancel, and on the south side piscina, credence and sedilia.

The last visit of the day was made to Oxburgh, where the two hours at disposal were all too short for full enjoyment of the hall and church. The hall, built 1482 by Sir Edmund Bedingfield, is an exceedingly good example of the moated fifteenth century house, with a wealth of pictures, carving, and furniture, the most interesting being in the King's room, hung with tapestry of the time of Henry VII., and containing the bed, with coverlet and curtains worked by Mary, Queen of Scots. The hall consists of a lofty gatehouse flanked by octagonal towers, and from this the living rooms extend round three sides of a quadrangle, completed by a corridor on the remaining side.

* Measured drawings of this church will be found in the *Builder* for June 5, 1880.

The church is interesting especially for its very beautiful and well-proportioned tower and spire, and the excellent examples of the Early Renaissance work in terra-cotta for which Wymondham and Layer Marney are noted. The sedilia, of Perpendicular design, are also remarkably beautiful.

We will continue our notes of the Excursion next week.

THE ROYAL ARCHÆOLOGICAL INSTITUTE AT NORWICH.*

Passing from the Cathedral into the beautiful grounds of the Bishop's Palace, the party was shown the place where a sermon was preached *sub Dio* occasionally in the summer, and especially on St. John's day. They then inspected the fine old vaulted apartment which now serves as the kitchen of the Palace, and which probably dates from the fourteenth or fifteenth century. They also visited the entrance tower and the remains of the chapel attributed to Bishop Salmon.

The last visit during the afternoon was paid to the Hospital of St. Giles', now more commonly called St. Helen's, but which originally was styled "God's house in Holm-street." Here Dr. Bensly, acting as the guide of the party, read a paper on its early history and arrangement, at the same time pointing out to his hearers the beautiful roof of the Eagle Ward and the tomb of the celebrated Norfolk antiquary, John Kirkpatrick. According to the *Eastern Daily Press*, from which we abridge our account of the paper, Dr. Bensly said that in the reign of Henry III., Bishop Suffield, otherwise Calthorp, founded and endowed in 1249 the Hospital of St. Giles' to maintain four chaplains daily celebrating service for his soul for ever, and "all the poor and decrepit chaplains in Norwich diocese who had not wherewith to maintain themselves," and also to support thirteen poor people, to be lodged there and to have one meal per day. Hamond de Calthorp, who was probably the bishop's brother, was the first master. After the death of Bishop Suffield the endowments of the Hospital were considerably increased by bishops and other benefactors, and it became one of the wealthiest and most richly endowed of all the religious establishments of the city. In 1535, upon the exchange of the endowments of the bishopric with King Henry VIII. for those of St. Bennet's Abbey, the advowson of the Hospital came to the King. Henry VIII. designed to dissolve the Hospital and to grant it to the city, it being a philanthropic establishment rather than a religious house, but he died before this change was carried into effect. However, in pursuance of his will that all promises which he had made should be punctually performed, the bishop, master, and brethren, having surrendered the Hospital and its possessions into the hands of King Edward VI., that King, by his letters patent granted the same to the Mayor, Sheriffs, citizens, and commonalty of the city of Norwich to be held as a place for relief of poor people, to be called "the House of God or the House of the Poor in Holme Street," of the foundation of King Edward VI. and King Henry VIII., the church there to be the parish church of St. Helen. In 1571, Queen Elizabeth augmented the charity with the forfeited lands of Robert Redman, to provide an exhibition of 4*l.* per annum for a Norwich scholar at Cambridge, and to increase the maintenance of the poor. Over the south porch of the church is a tablet recording the endowments by Henry VIII., Edward VI., and "Good Queen Eliza." Other benefactions were subsequently made by Robert Jannys and other charitably disposed persons; but, though carefully administered by the Corporation, the income of the hospital from its landed estates has fallen off considerably of late. The house, however, still stands.

At the evening meeting, held in the Lecture Room of the Young Men's Church of England Society, the Rev. C. R. Manning opened the section over which he presided with a paper of some length, in which he reviewed the progress made in the various departments of archæological research since the former meeting of the Institute at Norwich, at which he had himself been present. By the discovery of so many prehistoric remains in this and in other countries by Dr. Guest, Sir John Lubbock, General Pitt-Rivers, and others, a great step forward had been made in that branch of science, but in other branches the advance had not been equal. Still, he said, some remarkable contributions to this branch of antiquities had been contributed by Norfolk. Additional information had been obtained concerning the period of Roman occupation, while further light had been thrown on the character and purpose of earthworks. The mounds at Norwich and Thetford were probably of the time of Uffa. Considerable advance had, in fact, been made in the knowledge of this subject. There are several examples of church architecture prior to the Conquest of the date of 1020, built after the panic which led people to fear that the world would come to an end had subsided. He was of opinion that the round towers of the county were formerly more numerous than at present, and that they had in many instances been superseded by square towers.* Many old mistakes, Mr. Manning pointed out, had been corrected by recent investigation. Numerous discoveries had been made in the churches of the county that threw light on the religious sentiments of the people in the Middle Ages. These were being preserved. Truer principles were now guiding the architect, sculptor, and carver than formerly. Numerous and valuable contributions had been made to the literature of the antiquities and history of the county, most of which he enumerated. Archæological societies had, moreover, prevented the destruction of many ancient monuments that were threatened with demolition, and this was in itself no small gain.

Following Mr. Manning's opening address, Mr. G. E. Fox, F.S.A., read a very interesting and exhaustive paper on the "Traces of the Romans in Norfolk," traces which are somewhat difficult to discover owing to the fact that the absence of stone forced the Roman conquerors to use earthworks and wooden buildings, which time and man have conspired to demolish. Nevertheless he was able to point out several walled Roman stations, even on the northern coast of the county; and that they had homesteads in the more inland parts is shown by the finding of coins of the Cæsars and of Roman pottery, tiles, cinerary urns, &c., and of at least one Roman pavement. The chief places at which traces of Roman occupation are to be found were enumerated by Mr. Fox; among them being Brancaster, near Lynn; Caistor, near Great Yarmouth; Felmingham, Brampton, Threxton, Ditchingham, Feltwell, Brandon, Baconsthorpe, Beeston, and Burgh Castle, near Great Yarmouth; the last-named place was the Garianonum of antiquity, and must be reckoned, he said, as in Norfolk, though it stands just outside the present boundary of the county. Mr. Fox also showed historically how and by what means the territory of the Northern Iceni was gained by the Romans; and he concluded by adducing strong proofs of the theory that Norwich was really the true *Venta Icenorum* of Roman era; and by bringing forward several arguments to show that the country round about Norwich and Yarmouth is not much changed in its level or in its general features since the days when the Roman eagles waved over it, and that, although the mouth of the rivers Waveney and Wensum, and that of the Breydon Broads, has shifted in the last fifteen or sixteen hundred years, there is little or no reason for supposing that a salt-water estuary ever reached up to Norwich, as tradition asserts.

On the second day, Wednesday, Aug. 7, the members of the Congress, to the number of over 120, went immediately after breakfast by special train to Swaffham, the Mayor and Deputy-Mayor and the Sheriff of Norwich accompanying them. The President, the Duke of Norfolk, also took part in the day's proceedings. Passing by Wymondham,—or, as it is generally pronounced, Wyndham,—they gained from the railway a passing glimpse of the double-towered church, formerly a priory and a cell subject to the great Benedictine Abbey of St. Alban's, but afterwards made parochial, the choir, transepts, and presbytery being reserved to the monks, while the nave was assigned to the parishioners, who, not being allowed free use of the bells in the original tower, built a second one for themselves. Swaffham was reached about eleven o'clock; but the inexorable bugle of the director for the day was sounded, so an inspection of the fabric was impossible, and the party had to drive on to

Castle Acre,

the high mound of which was well in sight for some two miles before it was reached. On reaching Castle Acre their attention was divided between the huge mound and earthworks on the one side and the ruins of the Priory on the other. The party left their carriages about half-way up Bailey-street, and passed down a narrow lane to the outer yard of the Castle, from which it was easy for them to climb the grassy slopes of the ancient keep, which, it is needless to say, commands a fine view all round. Here Mr. Hartshorne read the following paper:—I have brought you to this rather perilous eminence because from this point we get the best general view of these very large earthworks. From here we can plainly distinguish the work of three periods and three people—the Roman, the Saxon, and the Norman. When we came through the ford at the foot of the hill, a few yards more brought us into the precincts of the Roman Camp; we then passed into the Saxon Burgh; and we now stand within the Norman keep. Now, first as to the Roman Camp. A camp of this size at once suggests a situation upon a great Roman road; and we accordingly find, leading straight from the north coast and impinging on the centre of this Roman camp, an ancient route called "Peddar's Way." The subject of Roman roads in Norfolk is at present obscure, and absolute proof is wanted; but I see no reason why the way should not be of the age of the camp and the name mediæval. You will have noticed before we came up the hill that we crossed some level ground skirting the river, and that the whole camp lay before us upon the rising ground. In its integrity the camp consisted of a parallelogram of about 380 by 280 yards, enclosed by a bank and a more or less deep ditch, with an entrance on the north and south sides. As we shall see presently, about one-fourth of the whole of this ancient defence has been quite removed,—that is to say, three-fifths of the north side and one-fifth of the south. This leaves the whole of the west side and two-fifths of the southern one in their integrity. There remain, therefore, the whole of the eastern portion, two-fifths of the north side, and the remaining two-fifths of the southern side to be accounted for. Before we do this let us analyse these Roman defences. Taking advantage of the natural resources of the site, the Roman engineer found that the rising ground was supported on the south side by a broad morass moistened by "the pale waves of Nar," and now level meadow-land. On this side he only required a slight bank, with a causeway leading to the ford, or a bridge, over the river. At the south-west angle the bank at once rose, and the ditch deepened. Along the north front, where he came upon level ground, both bank and ditch ran on, and so continued round the north-east angle, and down the slope to the south front on the morass. Such was the Roman camp. Now as to the Saxon burgh which succeeded to it. When the Saxon came—I will say in the ninth century—he found the works of the Roman both out of agreement with his mode of warfare and too large for his wants. Yet it behoved him so to deal with it that he could have sole control. He accordingly threw up a mound in the north-east corner, which he surrounded with a profound ditch, out of which, in fact, the mound was formed, and he utilised as much of the material of the eastern side of the Roman bank as he required for a court at this point. The court, or enclosure, thus formed is irregularly broken by some earthworks about half way across it, which seem to indicate the remains of the original Roman defence. The Saxon further formed a second and a larger court in front of the mound by utilising and adapting the south-east corner of the Roman camp, and striking a bank with a deep external ditch from the south side running northward and resting upon the mound. Thus was formed a *burh*, namely the mound, the hill of the burgh, with two appended courts. Upon the mound was planted the timber dwelling and offices of the chief, surrounded by a timber palisade,—a real wooden wall,—the courts being further protected by lines of the same defence on the comprising banks. It is improbable that the remaining and larger portion of the Roman camp would have been abandoned to the chance, or rather likelihood, of being converted by an enemy into a sort of *mal retais*, so this portion would also be taken possession of, and perhaps also palisaded or hedged about, as a refuge for cattle, for the inhabitants of the

* Continued from p. 102.

* It does not seem to have occurred to Mr. Manning that the reason for many of these towers of small Norfolk churches being built on a circular plan was to avoid the cost of labour of making quoin dressings at the angles, in walls mainly built of flint rubble. Any architect would (or ought to) see this at a glance.—Ed.

place, or for men seeking the shelter of the burh from an advancing force. This, then, was the stronghold which Earl Warren found at the *caput* of his 140 lordships in Norfolk at the time of the great survey.

Passing on to the Norman castle, Mr. Hartshorne continued: Earl Warren had his castle at Lewes in the days of the Conqueror, and I see nothing here to show that he built a fortress of stone at Castle Acre. He died in 1088, and was succeeded by his son William, who died in 1138, to whom succeeded his son, another William, who died in 1148. The history of Castle Acre Castle has not been prejudiced by much speculation as to its date, nor is there much architectural detail remaining that enables us to fix its precise period. We know that upon such a site as this the shell keep of stone was the usual form of fortress that replaced the earlier structure of timber; but very few remain for comparison of their details, and fewer still of which we know the date. The shell keep of Berkeley fortunately exists, and, more fortunately still, we know the date of it, from a charter. It was begun in 1155. On comparing the only remaining ashlar details of Castle Acre Castle with those serving the same purpose at Berkeley,—namely, the six pilaster buttresses on the outside of the shell,—we find that those at Berkeley have a set-off half-way up, while those at Castle Acre are of the earlier form,—namely, simple strips with only a slight break on their faces. Persons who have studied the growth of buttresses from narrow Saxon strips to the panelled and pinnacled structures of Perpendicular architecture will appreciate the value of the slight distinction I have just alluded to; and in a case like this we must make the best we can of the evidence we have got, without trying to extract more out of it than it properly gives. I think, therefore, we are justified in considering that this keep is at least earlier than 1155, and the evidence of a charter of the second Earl Warren, who died in 1138, in which he speaks of *meum castellum*, seems to imply that this actual stone castle was then existing, inasmuch as the Saxon structure is hardly likely to have endured so late, or to have had such a term applied to it. I put the date at about 1125. I admit that the actual evidence here for it is slight, but the general history of castle-building in the first half of the twelfth century supports it. And it will be remembered that the successor of this William de Warren was in possession for only ten years, and that he died in 1148. We may take it, therefore, that the second Earl Warren set up the shell keep on the mound, and inclosed the greater court with a curtain wall of masonry. But the mound was not so old, or so firm in its nature, that the Norman builder could be heedless in his work; and we accordingly find that, for greater solidity, the shell was built against the upper part of the mound, the wall showing, consequently, much higher without than within, and being further strengthened outside, in the north-west quarter only—its weakest point—by the six pilaster buttresses before mentioned.

When my grandfather, Mr. Kerrich, was here, just 107 years ago, he made careful notes and plans of the castle, which were bequeathed to the British Museum in 1828. Great changes have taken place in the last hundred years; but on applying Mr. Kerrich's plans to the existing remains, we are enabled not only to identify the fragments, but to reconstruct a great deal that must otherwise have entirely perished out of knowledge. His plans show four walls, or, as he rightly calls them "traverses," crossing the ditch, and abutting upon the keep. Of these, two were the continuation of the curtain of the large inclosure. That on the south-east still remains in part; that on the south-west connected the gateway with the keep, and may yet just be traced up the mound. That on the north-west may still be seen in the bottom of the ditch, and where it joined the second pilaster buttress, and the traverse on the north-east has entirely vanished. A wall remains, crossing the ditch of the great court on the east side, and there is another crossing the ditch at the south-west corner, of which more presently. The use and value of these walls in checking the progress round the ditches of an enemy who might possess the great court, is obvious, and no doubt at an earlier period timber defences were similarly employed. It is probable that there was also a wall on the counterscarp of the ditch of the mound. Mr. Kerrich speaks of foundations on the west side, and gives a sketch of the gateway as it was standing in his day. It consisted of two half-drum towers flanking a round-headed entrance, which ran through like a tunnel for a distance of 18 ft., divided midway by a portcullis,—a defence not common in Norman times. The towers abut right and left against the curtain wall, and are supported on the inside by the walls of the tunnel entrance, 18 ft. long and 7 ft. thick. The whole was solid, and the plan can still be made out, though it has fallen down. It was approached by a drawbridge across the outer ditch, and covered by a bastion on the south side. As to the curtain wall of the lower ward, in Mr. Kerrich's time a great part of it was still standing, and he mentions foundations of a tower at each corner, of which the lower part remained at the north-east angle. There was apparently a way through it to the smaller inclosure, but no appearance of any wall round that space. Mr. Harrod saw none, but Mr. Hope has just found a piece of foundation on one side, and some years ago Mr. Vere Irvine found another portion on the other; so this wall may be taken as proved. More particularly with regard to the keep—the inner ward. It is planted upon the top of the mound, which slopes to the south, and we have a good deal of the wall of its original height, with its flint-work parapet and allure. It is very rude work, as these shell-keeps usually were, and they had not yet learnt to square the flints; but the surface is hard and imperishable, particularly outside, but the ivy has seized it in its deadly grasp. It is evident that the walls of the keep were of two heights, about one-third, the upper portion, being ten or twelve feet higher than the lower, the two being no doubt connected by flights of steps from the upper to the lower allure. As to the details of the inside of the keep, they are rude, but something is to be made out of them. The wall has been much broken down on the east and south sides. First, then, we have at the broken end of the wall, due north, some masonry starting out diagonally, and containing in the angle the end of an arched passage. This is locally known as "Dolly Handle's Hole," and is, of course, only the remnant of something much bigger, perhaps a low watch-tower, *due north*. Working westward, we find indications of putlog holes, implying either the requirements of the original construction, or wooden erections planted against the wall, perhaps both. The wall is here of its full height, and the allure quite practicable for hardy climbers. Continuing, we come to the broken end of the wall on the west side. Here we find the remains of a postern entrance, approached, as I take it, by a flight of steps running up the outer side of the curtain wall that connected the keep with the gateway. In the keep wall we have the springing of the vaulted passage in its thickness, and indications of the arched entrance direct into it. The evidences are slight, but it is desirable to seize upon and not pass over such an interesting bit of detail, which perhaps a little clearing out might render more intelligible. We next meet with a fine bit of masonry, broken midway by the end of a wall projecting from it. A few feet above the grass are marks of a low barrel vaulting along the face of the wall, which here is of its full height, and exhibits two original crenelles or openings in the parapet. I think this vault sustained a stone platform and shelter for the guard or watch, the common room being below. They would keep a look-out through the crenelles. Now a very important part of the enciente is missing. It is inconceivable that a shell-keep of this size was merely entered by a doorway, a hole in the wall, and had no strong ingress. The mass of masonry in the wall at this point, as well as the amount of material that has fallen into the ditch, forbids the supposition that the wall simply ran on, and it appears that the entrance was made, as at Lincoln, between two broad buttresses or masses of masonry, and that a flight of steps descended from the upper ward to a bridge over the ditch. Within the ward was a strong tower, not, I think, necessarily of the same date as the keep. Mr. Kerrich shows the south and east walls of it in his plans, and Mr. Harrod laid bare the other two, which were of great thickness, on account of their nearness to the earthen bank; the whole measured 50 ft. by 40 ft. In the middle of the outer ward both Mr. Kerrich and Mr. Harrod indicate considerable foundations, of which the outline is perceptible at the present day. No doubt some digging would reveal the plans of a great hall, chapel, and kitchen, perhaps of a later date than the keep. A small portion of the wall at the lower end of the outer ward is quite complete, and near it is a low postern, that has had on the inner side a lintol of wood, showing the scarcity of stone of any length. Mr. Kerrich also mentions a gateway at the lower end of the town, in connexion with the wall crossing the ditch at the south-east corner. Mr. Bloom, in his notices of Castle Acre, says it was precisely like the upper gateway in the street, and that the remains of it were only removed in this century. Both would, therefore, be early English, and as they are placed upon the north and south lines of the Roman camp, they would have been in connexion with Norman or early English defences along those lines; and they further show that the later men were minded to make use of, or at least fortify, the whole of the earliest works, as I have supposed the Saxons did. There has been difference of opinion as to the date of the earliest earthworks at Castle Acre. Mr. Harrod, of whose labours here, and anywhere else in Norfolk, I should wish to speak with the greatest respect, was of opinion that the circular and horse-shoe works were pre-Roman. Many who were carried away with this idea have since abandoned it; and the change is creditable,—and I suppose inevitable,—for archæology of this kind has made great strides in the last thirty years. The story at Mileham, a few miles off, is just the same; there we have the Roman, the Saxon, and the Norman works quite as distinct as here, and each, perhaps, individually co-æval with that at Castle Acre. The written history of the Castle is very slight; we know, indeed, the descent of the lordship; but we fortunately still have in mound and masonry these great witnesses of a long life, not silent, but more eloquent than the written record. But slight as the written history is, it is something to know that the great Edward was more than once at Castle Acre, and I am disposed to believe that he lodged here, and not at the Priory, in February, 1297. At any rate, he would have visited the castle—at that time in its prime, and with its Norman defences just then getting a little obsolete—and no doubt he came under the gateway that has fallen, and mounted the now vanished steps into the keep, which has nearly perished. And perchance it was on this very spot, where we are now standing, that he made answer to the deputation from the clergy in the Parliament at Bury, who had refused a subsidy to the King. "From the moment that you cease to bind yourselves by the homage and on the pledge to me for your baronies, I hold myself to be bound in no respect to you." This was a bold speech, but I think the King had to give way. Fifty years later the castle was in ruins.

The reading of this paper was followed by a short discussion on the actual origin of the mound. Professor Clark suggested that the Romans would have scarcely made such a strategical blunder as to place their camp just below the mound, and yet Mr. Harrod stated that he had found in it some Roman remains at least. To this observation, however, Mr. Hartshorne replied that these Roman remains were mostly broken, and that the Saxons who threw up the mound may have derived them from the site occupied by their Roman predecessors. Mr. Harmer gave an opinion that the mound was not natural, but artificial, and Mr. G. E. Fox observed that the Roman cavalry would, of course, encamp outside the ditch which surrounded the place, while there would be room for between 800 and 900 foot soldiers inside the camp. Another member of the Congress reminded the party that Gundreda, wife of the founder, and daughter of William the Conqueror, died here.

The party next paid a visit to the parish church, which is dedicated to St. James, and presents, like so many churches in East Anglia, a mixture of the Decorated and Perpendicular styles. They much admired the elegant and lofty font-cover,—not very unlike that in Ewelme Church, Oxfordshire,—and the figures of saints still preserved on the lower panels of what once must have been a very fine rood-screen.

The next visit of the archæologists was to the remains of the once celebrated Cluniac Priory, of which some very fine portions still remain, though in a condition which seems to forbid any hope of their ever being usefully restored. Here Mr. St. John Hope, F.S.A., acted as guide and interpreter, and gave *seriatim* a *viva voce* description of the leading features of the fabric. The gate-house, through which access to the Monastic buildings is gained, he stated to be clearly the work of the fifteenth century, and it

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LACE COURT, KENSINGTON.

ERNARD SMITH, ARCHITECTS.

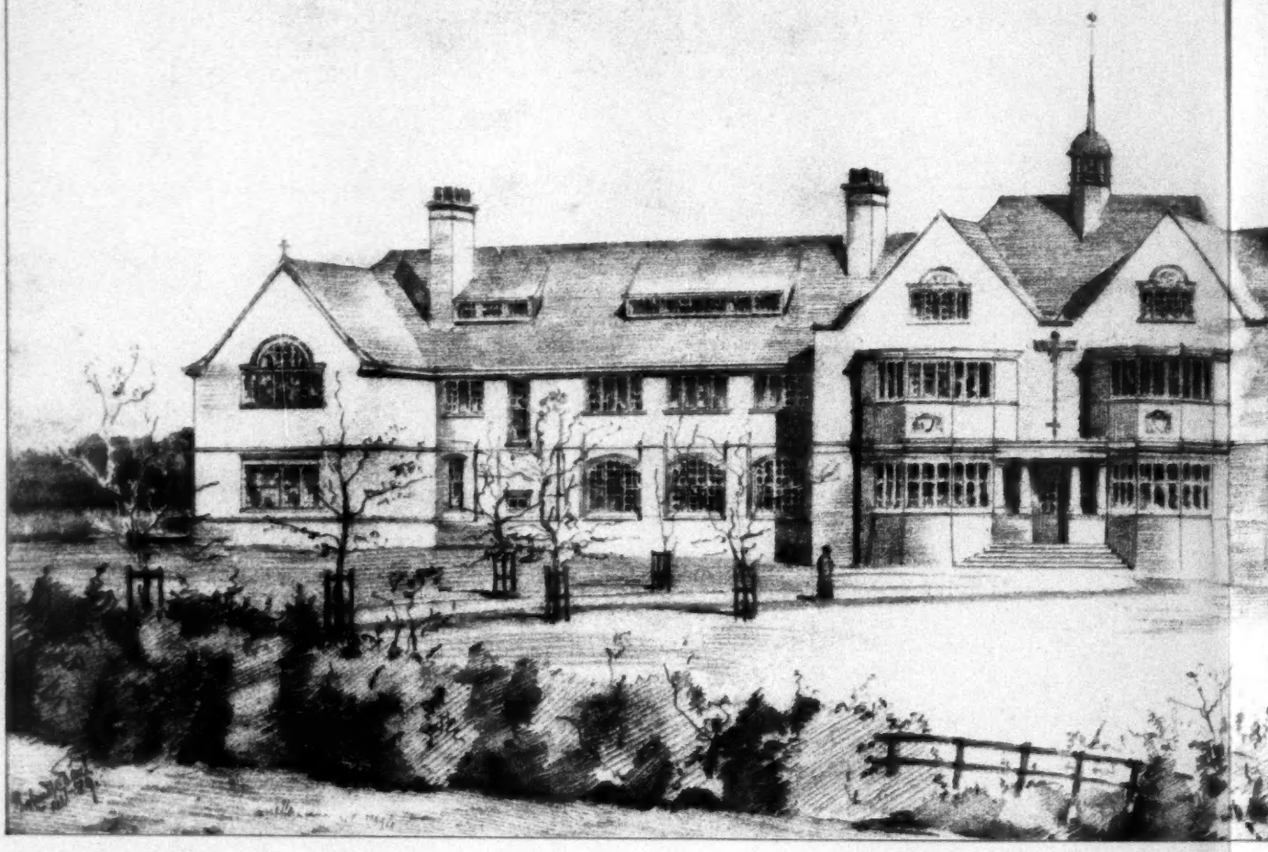
ENTRANCE HALL OF RESIDENCE, PA

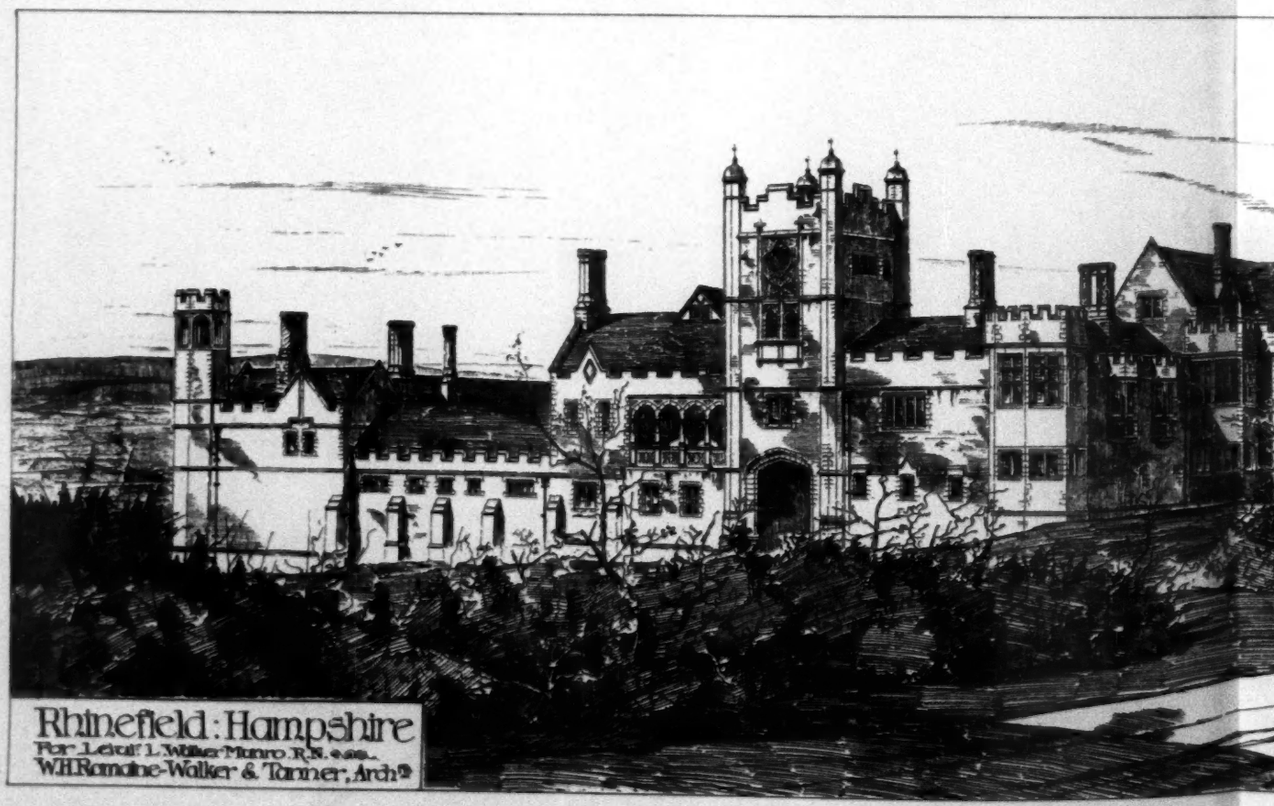
MESSRS. W. HARVEY, F.R.I.B.A., AND B

LACE COURT, KENSINGTON.

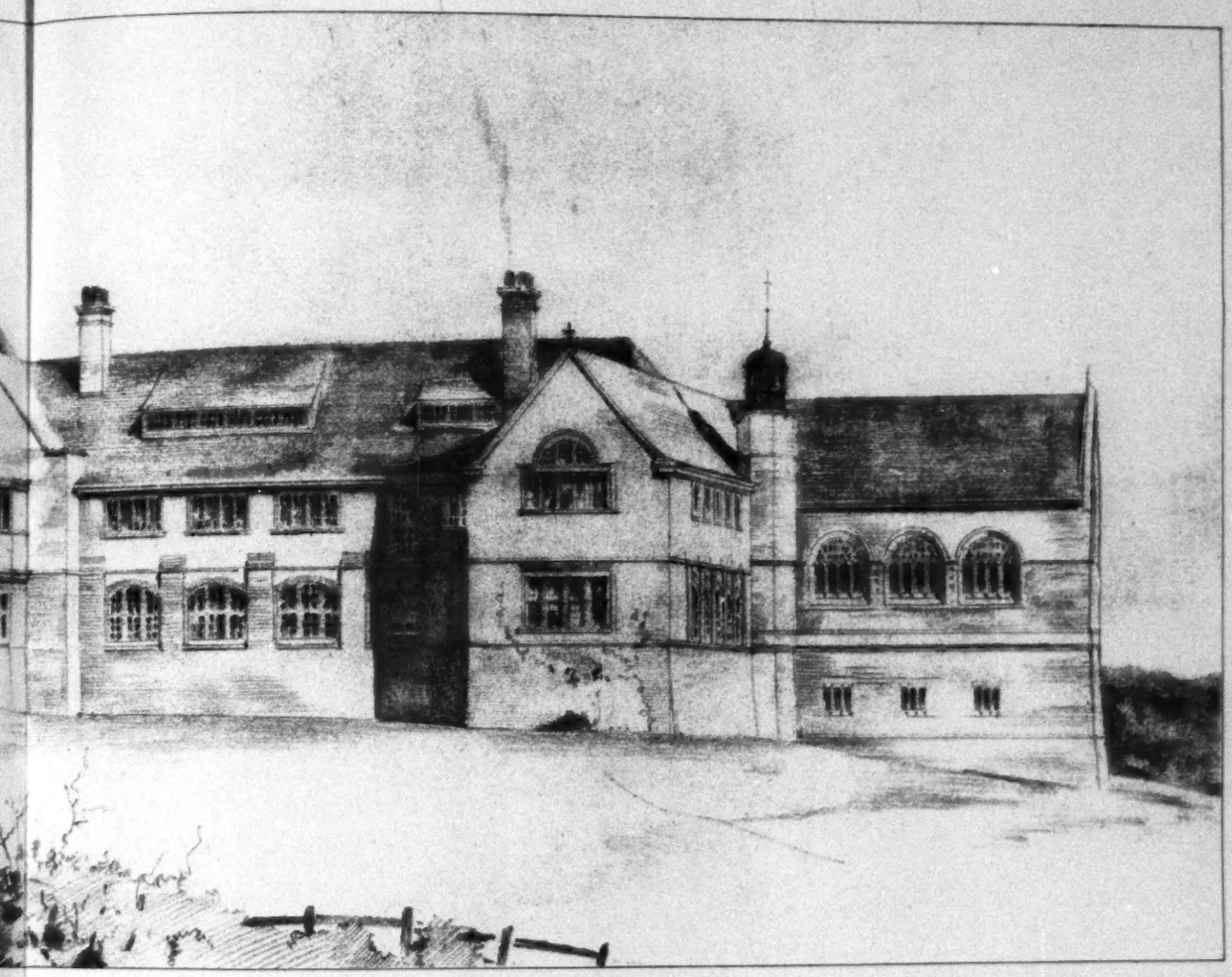
BERNARD SMITH, ARCHITECTS.

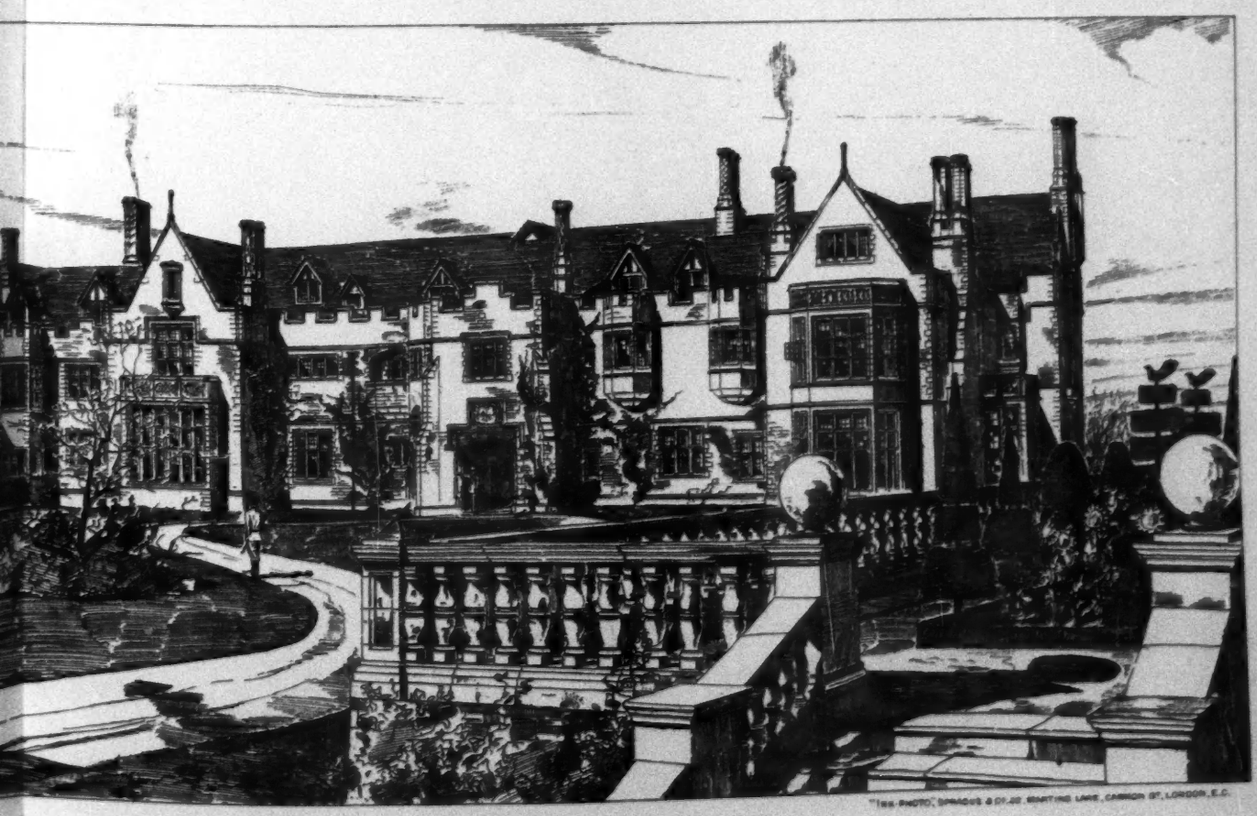
St Michael's, Waterloo Ville, Hants
Sketch Design—Leonard Stokes, Architect.





Rhinefield: Hampshire
For Lieut. L. Walker Munro, R.N. &c.
W.H. Ramsine-Walker & Tanner, Archts





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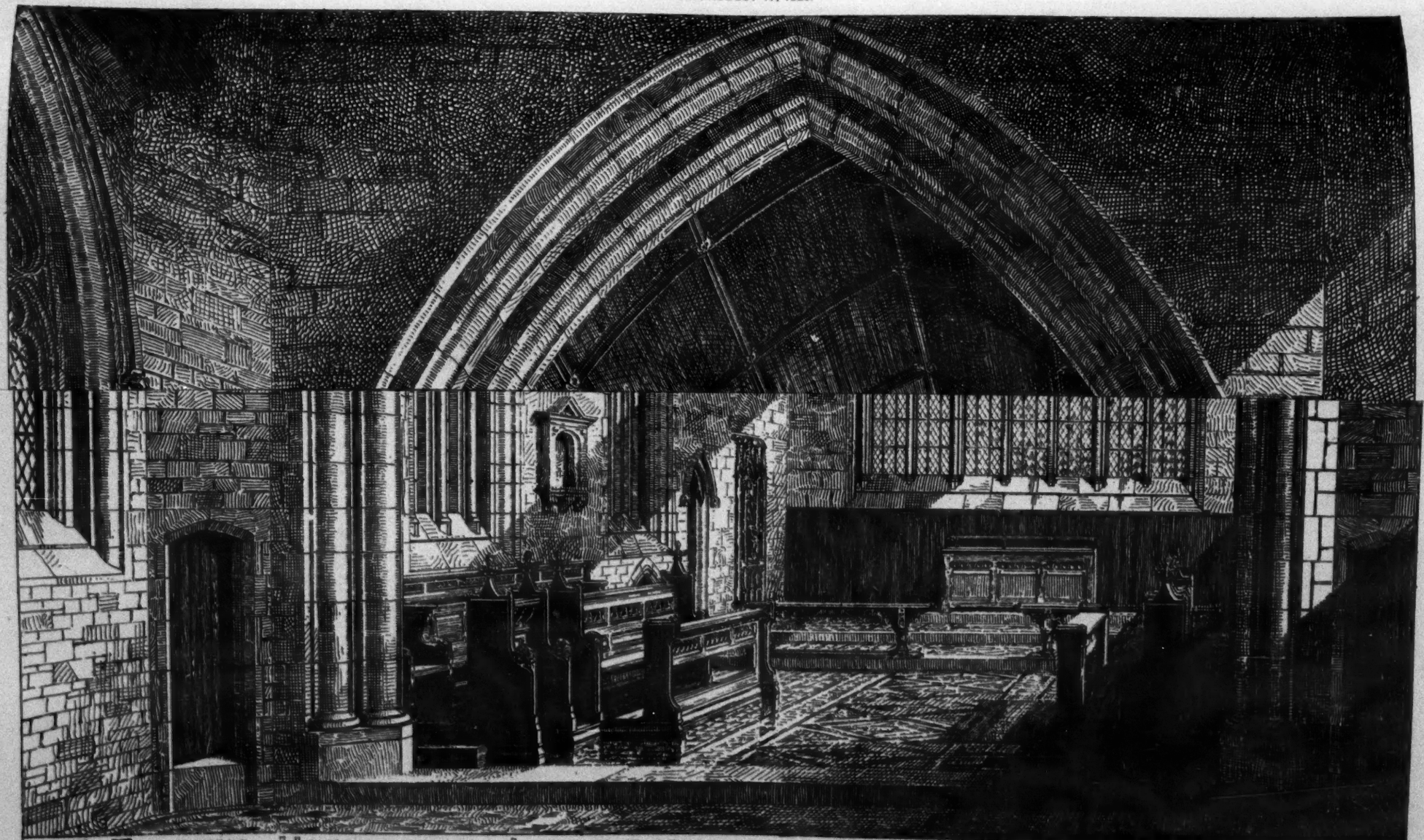
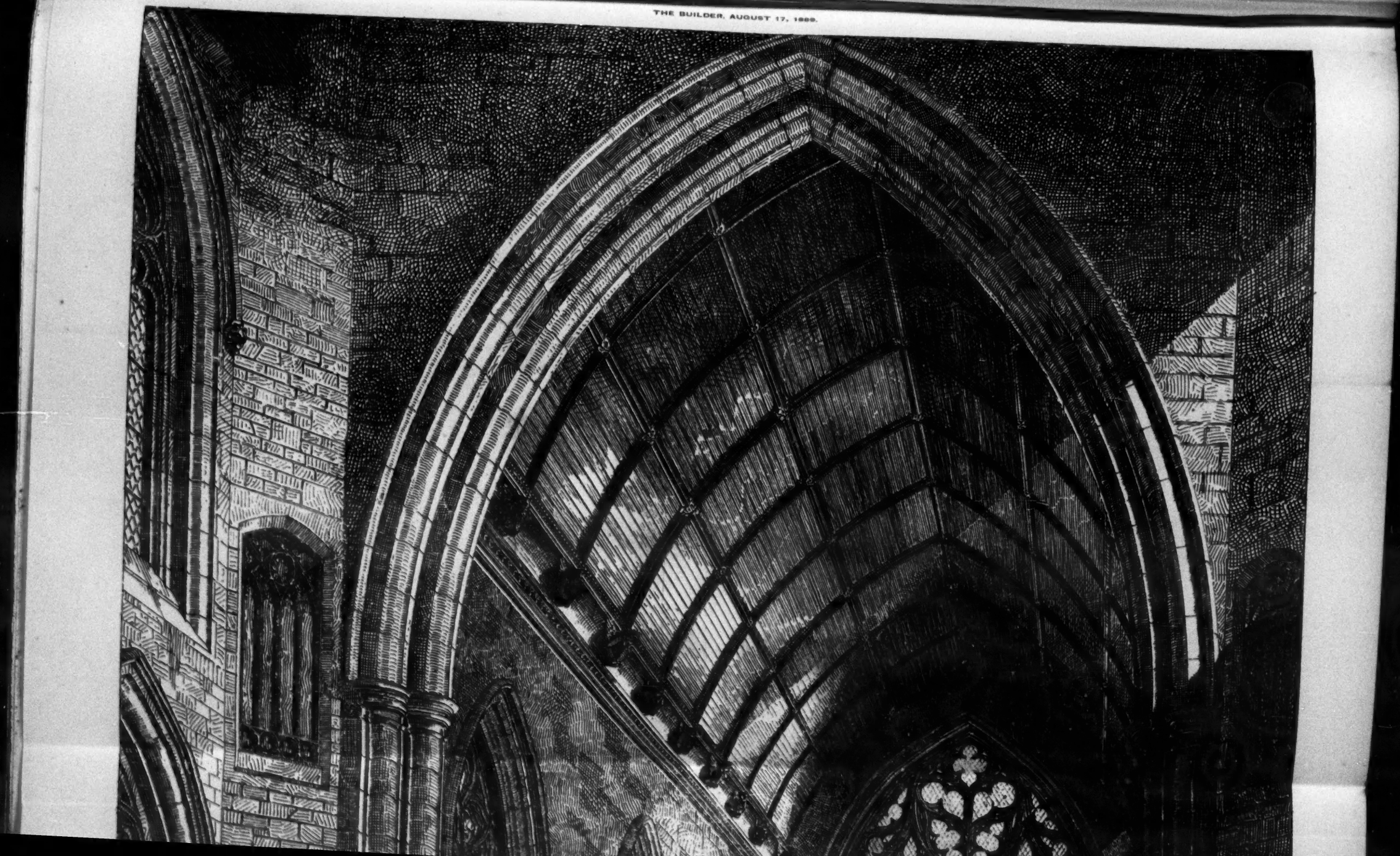


+ S: ANDREW, HECKINGTON, LINCOLNSHIRE. JAS: FOWLER, ARCHT: 1889.



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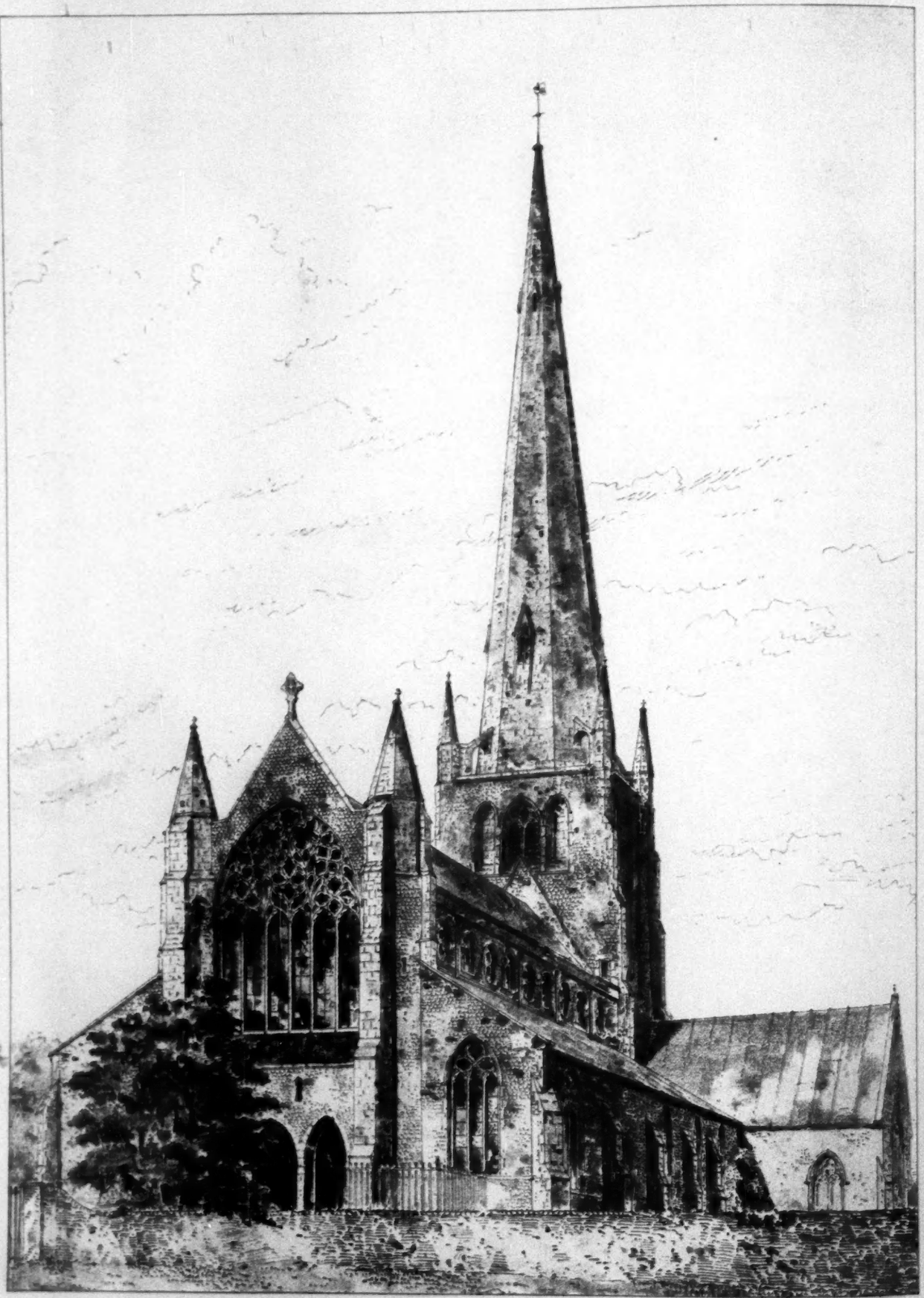

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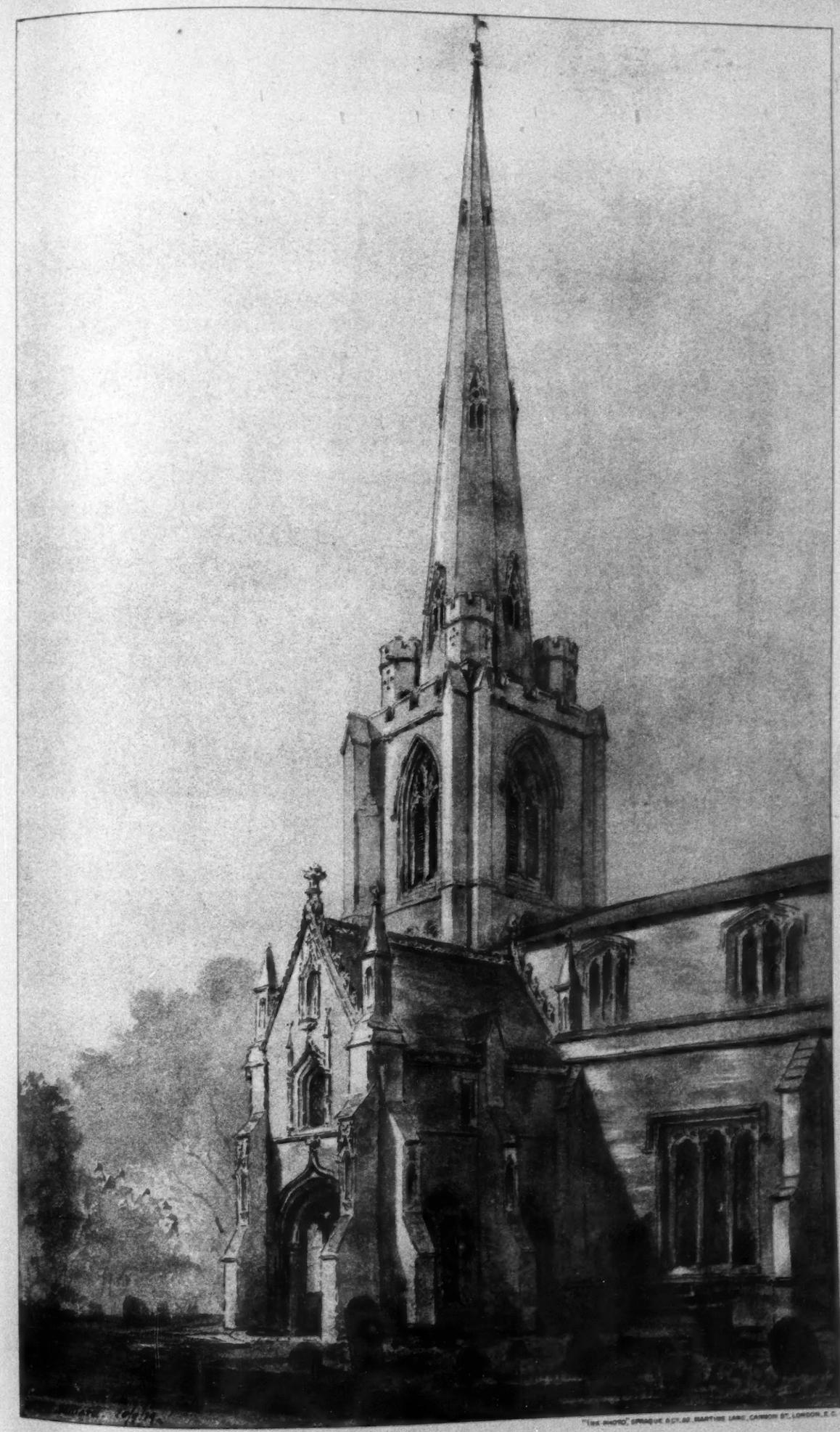
SNETTISHAM CHURCH, NORFOLK.



LEVERINGTON CHURCH, NORFOLK.

is built mainly of red brick. Its front is adorned with shields, representing the coats of the Warrens, Maltravers, and Warren, along with the Royal arms. The story of the Priory was told briefly by Mr. Hope, as follows:—In a charter granted to the Great Abbey of Lewes in 1088, mention is made of Castle Acre by the founder, William de Warren, who stated that he gave to the Church at Acre two carucates of land, where he and Gundreda proposed to make a monastery. But there is no evidence of a monastic place in the castle at Castle Acre. The second William de Warren confirmed to the priory founded by his father various lands and tenements, and gave the monks two orchards and all the cultivated lands between them and his castle, in which they had founded their church, because the place in which they then were was too small and narrow for the habitation of monks. The earliest buildings at Lewes were erected about 1097, and the sister house at Thetford was begun in 1107. By 1140 this priory had become very rich. It owned twenty-seven churches in Norfolk alone. Blomefield says the new church was consecrated by Bishop Turbs, in 1146. In 1275 there were thirty-two monks here, and subsequently the number was increased to thirty-five. In 1283 the Priory held 490 acres of land, of which 460 were arable, besides five water-mills and other property. In 1373, after many efforts to free itself from the mother house of Lewes, the Priory became independent. The monks had here a profitable relic in the form of the arm of St. Philip, which brought them much gain. In 1537, the priory was surrendered by the prior and monks, by compulsion, to Henry VIII.

So far as has been at present ascertained the plan of a Cluniac Priory does not differ materially from the well-known Benedictine type. Here the cloisters lay to the north of the church, while to their east was the chapter-house. Near it again was the dormitory, built over a substructure, which was divided by walls into five compartments, some of which probably were used as workshops. On the south were the "fratery" and "refectory," and on the west of the square ran a range of buildings which probably belonged to the cook and the "cellarer." To the east, again, stood another block of buildings which, no doubt, formed the infirmary, while further off again to the south are to be seen the remains of the stabling, bakehouse, brewhouse, and other buildings. The entire site, of about thirty acres, was enclosed by a stone wall, and it may be mentioned that all the various fragments that are dug up from time to time are of the same Norman pattern with the portion still standing. The west front, a very great part of which is still standing, was adorned with rows of Norman arches interlaced, and was flanked by two towers, one at the end of each aisle. The nave was originally lighted by three Norman windows, for which, according to Mr. Hope, one large window was substituted in the fifteenth century. Passing into the interior of the Church, Mr. Hope drew the attention of his audience to a variety of lesser details. For instance, he pointed out to them that, except in the bays at the western end, the aisles were separated from the nave by screens. Each transept evidently had an apsidal chapel on the east, and the nave was floored with a paving of black and red stones. Around the church was a Norman triforium, with a wall-passage all along, and above was a clearstory. The eastern end of the choir was lengthened, most probably in the thirteenth century, but for what reason can only be guessed now. The original walls of the presbytery were three bays in length, and it probably ended in an apse, but this has long since been destroyed. The aisles on the north side of the church were rebuilt in the fourteenth century, when their apses were made square, to suit the fashion or taste of the day. It is quite possible, added Mr. Hope, that the foundation of some buildings, which are now being uncovered to the eastward of the north transept, are those of a sacristy. As to the decoration of the church, in all probability it was very rich and costly, for while the Cistercians liked plain and simple grandeur, the Cluniac monks loved nothing so much as the adornment and enrichment of their churches. The cloister court, continued Mr. Hope, was 100 feet square, and had covered alleys round it. It was reconstructed in the fifteenth century. The roof was of wood. On the east side of the cloister was the dormitory, on the south the fratery, and on the west the cellarer's range of buildings. The chapter-house, beautifully arcaded in three tiers, had a great barrel vault, and terminated in an apse. There is no passage between it and the transept. Behind the chapter-house and dormitory stood the infirmary. This was not simply a hospital for sick monks, but also the place in which monks over sixty years of age, exempted from the routine of the rule of the order, were allowed to live. Monks who, on being bled, were allowed a relaxation of the rule, likewise lived here for a time. This infirmary had its chapel. It was also suggested that some of the monks who could not abstain came here to have their allowance of meat; and, doubtless, in the course of time a great relaxation of the rules of the order crept in.

The Priory must have been a cold place to live in during the winter months, for it would seem to have included no other warming apparatus beyond a small fireplace in an apartment below the dormitory and the refectory. This was the calefactory, or warming-place, to which the monks came not only to warm their hands but to chat and talk when the rule of silence was relaxed, for the silent system was the rule throughout the rest of the buildings.

The round of inspection was brought to an end at the Prior's Lodgings, which extended to the westward of the cellarer's buildings. Descending some stone steps which had been made out of a newel staircase that entered the building in the rear, the visitors entered the chapel of the prior, where there are vestiges of gorgeous painting on the splayed wall of the east window, and on the rafters. There is also here a Decorated sedile, and the capitals of shafting near the ascent to the site of the altar are enriched, the one with the arms of Warren and the other with those of England. Adjoining this chapel is the chamber of the prior, which has beautiful oriel windows.

Mr. Davey, Lord Leicester's agent at Castle Acre, stated that it is the intention of the owner to encourage the discovery of "finds" at the Priory, and to store them in a museum within the buildings; and, on the motion of the Rev. Dr. Jessopp, 14*l.* was collected on the spot in order to help forward the proposed work.

The party next paid a hasty visit to Great Dunham Church, which is said to be pre-Norman, and which has a triangular-headed doorway at its west end, blocked up. The quoin-work here is singular. The central tower has a double-lighted window, the lights being divided by a plain pillar with a cushion cap, which supports a single long stone. It has also several singular apertures, made probably for acoustic purposes, over each arch in the eastern and western sides.

Driving to Fransham station, the party caught the return train to Norwich, and at the evening meeting Dr. Raven read a carefully elaborated paper on "The ix Iter of Antoninus," which he traced from London to Colonia (Colchester), and thence to the neighbourhood of Sitomagus (Dunwich), and then crossing the Waveney by a ford near Bungay to "Venta Icenorum," which he had no hesitation in assuming to mean Norwich, or its immediate vicinity. He argued very strongly, from internal evidence, and from the mileage mentioned by Antoninus, that no other interpretation could be given to the vexed question raised in this chapter. The reading of this paper was followed by a discussion, in which Mr. Fox, Dr. Jessopp, and other members of the Institute took place, and by a vote of thanks to its author. Mr. J. L. André, of Horsham, Sussex, followed with a short paper on the "Peculiarities of East Anglian Church Architecture." Among these he reckoned one point of considerable interest,—namely, the large admixture of geometrical tracery with the tracery of large windows of Perpendicular date and character, instancing examples from St. Nicholas' Church at Lynn, and from very many of the Norwich churches. He also mentioned the constant recurrence of one type of construction; this is marked by lofty internal proportions, the absence of chancel arches, and the continuation consequently of nave roofs over the chancels, and the lofty arches by which the lower parts of the western towers were made to open into the nave. He also drew attention to sundry sections of mouldings on the bases of columns, where Perpendicular and Decorated details were found intermixed. Another point which he specified was the constant use of elaborate wood-carving in the interior of churches in East Anglia, while the exterior was left comparatively plain, or else decorated by light and dark flint work in diaper patterns. He concluded his paper with a few remarks on the small churches with round towers to be seen in the neighbourhood of Yarmouth and Lowestoft.

(To be continued.)

Illustrations.

ENTRANCE OF HOUSE, PALACE COURT, KENSINGTON.

THE view shows the interior of the hall of a residence, the exterior of which was illustrated in our pa[illegible], Nov. 5, 1887.

The large mantelpiece is in polished Hopton wood, and the wainscotting, screen, &c., are in fumigated oak, the space above the wainscotting being hung with tapestry. The architects were Messrs. W. Harvey and Bernard Smith. The drawing from which the illustration is taken was exhibited at the Royal Academy this year.

ST. MICHAEL'S, WATERLOO VILLE, HANTS.

A PORTION of this building is now being erected at Waterloo Ville, near Portsmouth. It is to be used as a home for girls, and a large washhouse, &c.,—not shown in our illustration,—is being erected at the back of the building. The materials used are local bricks, with red brick plinths, bands, &c. Our illustration is taken from the drawing exhibited at the Royal Academy. Mr. Leonard Stokes is the architect, and the builder is Mr. J. Edwards, of Waterloo Ville.

RHINEFIELD, HANTS.

THIS house, the country seat of Mr. Lionel Walker Munro, is situated in the heart of the New Forest, and takes its name from the inclosure in which it stands, and which for centuries has borne the name of Rhinefield. To make way for the house, which is entirely new, the old keeper's lodge had to be pulled down, but the materials have been re-used in erecting the new lodge at the entrance to the estate. The ground story is built of the old bricks, which are of the small size much used in the locality in days gone by, and many bear dates cut into them of the first half of the eighteenth century. The upper storey is of hung tiles, and the roof of the same material. Great care was taken not to disturb the moss and lichen which clung to both bricks and tiles, the result being that the lodge has every appearance of an old building. This lodge, with kitchen-garden walls which surround an acre and a quarter of land, and four pairs of elaborate wrought-iron park-gates, formed the first contract.

The second contract was for the well, which has been sunk to a depth of 87 ft. 6 in., and the cellerage under the house, which is very extensive. The wine-cellars have been a special care, and have been so planned that an even temperature can be maintained both in summer and winter. An air-space of 2 ft. 6 in. is carried round between them and the outer walls of the house. This is connected, not only with the outer air, but with the heating-chamber, and both inlets are under control. The principal cellar has a capacity of 1,000 dozen. There are also cellars for various wines requiring different temperatures. The butler's cellar is provided with a small, smooth-running lift, direct into the serving-room.

The third contract, which has just been accepted, includes the carcass of the superstructure, exclusive of the stable court. The view taken in our illustration is from the drawing which was exhibited in this year's Royal Academy, and represents the entrance or north front. The rooms to the right of porch are the library and business rooms, and to the left the lavatory, smoking, and billiard rooms. All the principal rooms are on the opposite side of the house; the state drawing-room faces south and west, the withdrawing-rooms west, the morning room south and east, and the dining-room east and south. This room, which is 36 ft. by 24 ft. and 18 ft. 6 in. high, has a great bay-window facing east at the extreme end of one side of the room, from which a magnificent view is obtained. There is also a gallery at one end over the serving passage. One of the principal features of the house is the Great Hall, which measures 67 ft. by 25 ft. by 35 ft. 6 in. high. The roof is of hammer-beam construction, with Late Gothic tracing in the two upper stages, and carved pendants from the ends of the

hammer-beams. Over the entrance vestibule there is a minstrels' gallery, extending the full width of the hall. The principal staircase, which will come in the panelling contract, has treads 9 ft. wide, and a massive arched balustrade supporting the handrail. There is a waggon-roof over the staircase, with moulded ribs. The whole of the above work is of oak, as will also be the panelling of the hall (which will be 13 ft. high) and the panelling of dining-room, library, &c.

The portion of the building advancing at right angles to the main front is devoted to the offices on the ground, and the suite of bachelor rooms on the first floor. This bachelor wing can be reached from the billiard and smoking-room by a special staircase. The entrance to the kitchen court is under the great tower. An important feature of the planning of this house is that no servant's room or office, with the exception of the attic dormers, can overlook the grounds at any point.

The tower will contain the machinery for the electric lighting, pumping, and the air compressors for the fire service. In the upper staging will be the clock and peal of bells, and above this the water tanks. From the top of this tower a fine view may be obtained of the Solent and the Isle of Wight, over a splendid stretch of forest.

On the first floor, directly off the principal staircase, is the house suite, consisting of bedrooms, dressing-rooms, bath-room, and boudoir. This latter has two oriel windows overlooking the great hall, besides one window facing south and overlooking the terraces and lawns.

From the boudoir there is a private turret-staircase communicating direct with the drawing-rooms and great hall. Above the house suite, and communicating by another private staircase, is the maids' rooms, serving-room, and dress-room. The whole of the first-floor is given up to bed and dressing rooms, of which there are a large number, and each is connected by an electric bell to a maid or valet's room in addition to the usual bells.

Advantage has been taken of the fall in the land, which is 20 ft. between the east and west extremities of the building, and which adds much to the picturesqueness of both house and grounds. The terraces are being thrown up, and some will be surmounted by stone balustrades.

The material employed for the walling is Purbeck, hammer-dressed and laid in sand in courses with Monk's Park stone dressings. All the exterior walls are built with a 2 in. cavity. The filling in of the elaborate Late Gothic groining to porch is of chalk. The chimneys, every one of which is different in design, are of carved brick. The majority of the floors and panelling are of oak. Glazed tiles are largely used throughout the kitchen offices and larders, the shelves of which are of white marble.

The general contractors for the house are Messrs. McWilliam & Son, of Bournemouth; Messrs. Easton & Anderson for the well and water-service; Messrs. Clark & Mannooch for the sanitary plumbing; and Mr. J. Burford for the wrought metal-work and casements. The lodge was built by Messrs. Holloway Bros.; the clerk of works is Mr. W. Cowley; and the architects for the whole are Messrs. Romaine-Walker & Tanner, of London.

CHURCH OF ST. ANDREW, HECKINGTON.

This church is so well known to all students in architecture that any account of it would seem superfluous. We would, however, draw attention to the chancel, which, for a country parish, is perhaps one of the finest in the kingdom, being 56 ft. long, 24 ft. broad, and nearly 40 ft. high in the wall. It is three bays in length; on the south side there is a fine three-light window in each, with a priests' doorway in the central one, and two similar windows on the north side, the eastern bay being taken up with the sacristy; the bays are marked by boldly-projecting double-canopied buttresses, and at the angles are finished with handsome pinnacles. The east window is 37 ft. high, has seven lights, and ranks as one of the finest flowing Decorated windows in the kingdom. The walls and windows have been restored, the latter re-glazed, the east gable raised to its original pitch and surmounted with a fine cross, the total height being about 60 ft. The roofing is new, and of framed rafters, arched to suit the shape of the east window, while it also fits more closely the shape of the chancel arch, and panelled, with larger ribs to mark the bays, all the intersections have carved bosses. The stone cornice of the walls is continued with a moulded and coved one of wood, in the cove are carved figures of angels with extended wings. The fittings are entirely of English oak. In the floor the old memorial slabs have been relaid with a main avenue of tiling laid up the centre. The groining of the undercroft has been restored, the old access to the same has been made good, and a doorway opened out on the west side of the vestry in lieu of the mutilated window at the east; the vestry is over this and has a tile floor. On the removal of the old roof a stone gutter was found, all the joints of which are made with lead; this is formed in the plain course of stone between the cornice and the flowing tracery of the parapet, the latter being an after-thought, as the old weather-mould shows the roof to have finished on the cornice in the same way as that of the sacristy now does. The restoration has been carried out under the direction of Mr. James Fowler, of Louth, architect. Messrs. Pattinson, of Ruskington, were the builders. J. F.

SNETTISHAM AND LEVERINGTON CHURCHES, NORFOLK.

These two churches, of which we give illustrations, are among the churches which were visited by the Architectural Association in their annual excursion this week.

Leverington Church is referred to in the account of the earlier part of the excursion given in another column. Snettisham was visited on a later day, of which we are not able to publish an account this week.

Snettisham is by far the finer and more characteristic building. Leverington spire partakes of the thin and rather starved character frequently to be noticed in the spires of the adjoining county of Lincoln, such as that of Billingborough. Instead of the thin, cast-iron-looking, flying buttresses of Billingborough, however, the later builders have fortified this spire with solid battlemented turrets at the angles, which, though they give a marked character to the building, do not fall in very well with the general composition, and appear rather too obviously as after-thoughts.

SOMERSET ARCHÆOLOGICAL SOCIETY

The forty-first annual meeting of the Somerset Archæological and Natural History Society commenced on the 30th ult. at Minehead, under the presidency of Mr. G. F. Luttrell, of Dunster Castle. There was a large gathering of members, and the day was beautifully fine.

The annual general meeting was held in the morning in the Town-hall. A local museum was formed under a committee, of which the Rev. Walter Hook (Porlock) was the hon. sec. It included many objects of archæological interest, specimens of natural history, &c., and was under the direction of Mr. Bidgood, the curator of Taunton Museum.

Mr. Chisholm Batten announced that the president of last year, the Bishop of Bath and Wells, was prevented from attending, as that was his golden wedding-day.

Mr. Luttrell having taken the chair,

The Rev. J. A. Bennett read the annual report, which stated that the number of members had increased to 550, and new members were continually being added. The funds of the Society were also in a satisfactory state, the balance in hand on the general fund being 91*l.* 17s. 5d., and the balance on the Castle purchase fund debt had been reduced from 431*l.* 17s. 5d. last year to 329*l.* 19s. 3d. "The library has been greatly enriched during the year, especially by the munificent gift of the late Mr. Surtees' library, presented to the Society by the kindness of his widow, Lady Chapman. This library amounts to about 3,000 volumes, and is the most extensive and valuable present the Society has ever received. The manuscript collections of the late Rev. F. Brown, consisting of more than 100 volumes of abstracts of Somerset wills, have been presented to the Society by his son, Mr. F. Latham Brown. A very valuable illuminated MS. copy of Higden Polychronicon, written by the Monks at Keynsham about 1377, has been presented by Mr. Kerslake. The Council have also to report the presentation to the museum of the magnificent collection of red deer heads, belonging to the late Mr. Fenwick Bisset, killed on Exmoor, and given to the Society by the kindness of Mrs. Fenwick Bisset. It has been remarked by persons capable of judging that there is no such collection of horns in any local museum in the country." The Council had to report the acquisition of a valuable piece of land adjoining the Castle wall, and including ground formerly a bastion attached to the Castle. It had just been purchased by the kindness of Colonel Pinney, and at his expense conveyed to the trustees as part of Taunton Castle property. The Council submitted the name of Lord Carlingford to be patron of the Society, in the place of Viscount Portman, deceased. Among contributions to Somerset history recently published, mention should be made of the Rev. F. Weaver's "Incumbents of Somerset;" a third volume of Somerset wills, printed from the Rev. F. Brown's collections; a volume by Mr. E. Green, on "The Preparations in Somerset against the Spanish Armada"; and Bishop Fox's register, by Mr. Chisholm Batten. The catalogue of the library was printed, and would shortly be ready for issue. It was proposed to prepare and print a catalogue of the Surtees library as a supplement. The Council begged to call attention to the meeting of the Society of Antiquaries, to which they sent delegates last year. It would be the duty of the Society to say if they accepted the terms of union, and approved the programme agreed upon by the delegates, so far as it applied to that county.

Mr. H. J. Badcock read the balance-sheet for the year ending December 31st, 1888. The members' subscriptions amounted to 262*l.* 9s., and the balance on the former account was 57*l.* 0s. 8d., the total receipts being 402*l.* 2s. 5d. After paying all expenses there was a balance of 91*l.* 12s. 2d. The balance-sheet of the Taunton Castle purchase fund showed that 329*l.* 19s. 3d. was now owing.

The Rev. J. A. Bennett, referring to the Somerset Record Society, said: Again in this, the third year of its existence, I have the pleasure of being able to give a good report of the state and prospects of our Society. The number of its members has increased from 121 to 134, and the finances are in a satisfactory state. It may be as well, however, to note that it will probably be necessary, as time goes on, to spend more money for transcriptions than has been the case hitherto. Through the generosity of our editors, who have given not only their time and labour to the usual work of an editor, but have also provided the texts, the Society has been saved very heavy expenses, but it can hardly be expected that this will always be so. Our next volume will be a set of churchwardens' accounts from several parishes, chiefly between the years 1450 and 1570. It is already in progress, under the editorship of Bishop Hobhouse, and promises to be a volume of peculiar interest in the vivid picture it will give of the actual life of our country parishes in past times.

On the motion of Mr. Hobhouse, M.P., seconded by Mr. Foxcroft, the report was adopted.

A vote of thanks was passed to Lady Chapman and Colonel Pinney for gifts mentioned in the report.

The President did not deliver the usual formal address, but he gave the society a very cordial welcome to the West, which, while not, perhaps, possessing a great number of specimens of archæological interest, had the great natural beauty of its scenery as a compensating balance.

In the afternoon there were excursions to places of interest in the locality, and in the evening there was a meeting.—(Slightly abridged from the *Bath Chronicle*.)

DEATH OF MR. J. G. CRACE.

We regret to hear of the death, on the 13th inst., at his residence, Springfield, Dulwich, of Mr. John Gregory Crace, in his 81st year. As the principal of the well-known firm of J. G. Crace & Son, he may be said to have been a pioneer in the revived use of colour-decoration; and his work at the Houses of Parliament, and at the buildings of the Art Treasures Exhibition, and of the 1862 Exhibition in London, may be cited as favourable instances of his efforts. One of his most recent and successful works is the oak staircase at Mercers' Hall, which he designed and carried out in his 72nd year. This work was fully described and illustrated in the *Builder* for July 9, 1881. John Gregory Crace was one of a line of "decorative painters." From a magazine article, published a few years ago, we learn that Edward Crace, the first in this direct succession

of artistic decorators, was born in 1725. He was the son of Thomas Crace, "Citizen and Coachmaker," of Westminster, and his mother was a daughter of the Surveyor of Westminster Abbey. In 1748 he was admitted to the freedom of the "Painter-Stainers'" Company, and to the livery in 1752, by which date he may be considered to have made his start in business; and the following year he married a Miss Nunn, an artist's daughter. He was certainly occupying premises in Long-acre, conjointly with his next brother Charles, in the year 1756, and carried on business at 40, Long-acre, from 1764 till his death in 1799. Among other works, he decorated, in 1771, the Pantheon, which James Wyatt, R.A., had just built for dramatic performances. In 1780 Edward Crace was appointed by the Crown Curator of the pictures in the Royal Palaces (Windsor Castle, Hampton Court, Kensington Palace, and Buckingham House)—a post which he retained till his death. His son John Crace was born in 1754, and was in 1767 duly apprenticed to his father in the Painters' Company—in which, however, he did not take up his freedom till 1785. He then first started on his own account, and transacted his business at 153, Drury-lane, for many years. He was entrusted with important works by Sir Robert Taylor, Sir William Chambers, Sir John Soane, and James Stuart of "Athens" celebrity. He was also employed by the king, George III., and the Prince of Wales, for whom he decorated Carlton House. Among other public works he also decorated the Opera House, Drury-lane and Covent Garden Theatres. He died in 1819. His eldest son, Frederick Crace, born 1779, had then for many years assisted his father, to whom he had been formally apprenticed in 1793. He resided and had his office at 34, Curzon-street, from 1806 to 1812, after which he lived out of town, and carried on business until 1826 at 51, Great Queen-street, in partnership with his younger brother. During this period he was constantly engaged on decorative works for the Prince Regent at Carlton House, and the Pavilion, Brighton, in the great Dome of which his work still remains; and, later, for the same Prince, as King George IV., at Windsor Castle. The *Morning Herald* of July 2, 1827, mentions a special visit of the King to Windsor Castle to "inspect the progress of Mr. Crace's work." We are told that the incessant demands of Royalty on Mr. Crace's time began to trespass considerably on his general business; and, towards 1826, the assistance of his son, John Gregory Crace (whose death is now recorded), must have been very welcome. At the expiration of the lease of the Great Queen-street premises, they moved first to 230, Regent-street, then quite new; but in the following year (1827) they removed to the premises in which the business has ever since been carried on—No. 14 (now 38), Wigmore-street. Here father and son worked side by side for over thirty years, and here the firm of "Crace" developed the business on wider lines, and attained its highest reputation. It may be mentioned here that it was whilst engaged in avocations demanding such constant attention and industry that Frederick Crace found time to form the wonderful collection of Maps and Views of London which found its way into the British Museum as the "Crace Collection" a few years ago. Not only did he form the collection, but mounted every plan and every drawing with his own hands. His appointment as a Commissioner of Sewers interested him in the changes which the great metropolis had passed through; and for over forty years, rising early to *make* time, he devoted some hours each day to his hobby. This continued till within a few months of his death, which occurred in his eighty-first year, 1859. He had lived not only to see his son form a high reputation, but to see his grandson, Mr. John D. Crace, beginning earnestly in the same path. John Gregory Crace, the subject of our present notice, was born in 1809, and had already put his hand to the plough before the firm left Great Queen-street, and they had not long settled in Wigmore-street before his new energy and natural taste made themselves felt. He had, as a youth, visited Paris: and he felt that the English, so long cut off by war from the Continent, were far behind the French in all the decorative arts. In fact, English taste was almost at its lowest ebb. He repeated his visit, and engaged French artists; and in 1838 began the elaborate decoration of the room which is still the firm's principal show-room at Wigmore-street, and which had been added soon after the premises were taken. In 1843 he determined to extend his knowledge of decorative works abroad, and made a tour in France, Germany, and North Italy with this object. His first works of importance were undertaken, on his return, for the late Duke of Devonshire, at Chatsworth and at Devonshire House; and he was shortly afterwards called in by the Marquis of Breadalbane, who entrusted him with the decorative works at Taymouth in preparation for the Queen's visit, as well as with works in London. Meanwhile, the firm had been engaged from time to time on one or other of the theatres, and were preparing for the internal decoration of the St. James's Theatre, then beginning to be built, when the architect, Mr. Beazley, fell ill, and Messrs. Crace, to save delay, took up the matter, and designed and executed the interior decoration, which remained as they left it until it was remodelled some years ago. In 1846, Mr. Crace made another tour in France, devoting most of his time to the restored Sainte Chapelle in Paris, and the beautiful chateaux of the Touraine,—Blois, Chambord, and Chenonceaux. Of these, Blois was then undergoing careful repair and restoration by the architect, M. Duban, who was paying special attention to the renewal of the coloured decorations, and who accorded to Mr. Crace full permission to take notes and sketches. The immediate results of this tour were summarised in two papers read in that and the following year before the Royal Institute of British Architects, of which body he had been made an honorary member, in recognition of previous contributions to the "Transactions." In 1848, John Gregory Crace was selected by the Government, on the advice of Sir Charles (then Mr.) Barry, the architect, to execute the coloured decoration of the Houses of Parliament. At this time (although his father continued for many years to take some less active part in the business) Mr. J. Gregory Crace was virtually the leading partner, and to him fell the management and direction of this important work. Here he made the acquaintance of Augustus Welby Pugin, and soon afterwards turned his attention specially to the production of fittings and furniture of a character suitable to Mediæval decorations. Of the Exhibition of 1851 he was one of the earliest sympathisers and promoters. He was appointed a Special Commissioner, and was one of the jurors selected to adjudicate on works of decoration, furniture, and paperhangings. Besides his work at the Crystal Palace, he was engaged on numerous works in town and country, and the long journeys and incessant responsibility allowed of no repose. At the end of 1854 a severe illness threatened his life; but a holiday in Spain, the first he had known for many years, restored him to health. It was fortunate that just before this illness his eldest son and partner, John Dibblee Crace (born 1838), had entered the business, bringing with him a love of art and architecture, and a ready pencil. Aided by his grandfather (Frederick Crace), who was now becoming infirm, he helped to tide over a critical time, and speedily acquired some knowledge of the business. In 1857 John Gregory Crace was called in to design and carry out the coloured decorations of the "Art Treasures Exhibition" at Manchester,—a work which considerably increased his reputation. In 1861, he was invited to undertake the decoration of the "Waterloo Chamber," the great banquet-hall of Windsor Castle. In this work the Prince Consort took great interest: it was not quite complete at the time of his death. In 1862 came the second Great Exhibition held in London, and Mr. Crace was appointed to design and supervise the decoration, of which the execution was included in the general contract. To give a list of Mr. Crace's numerous works would require a great deal of space. We can only say, in conclusion, that he took a keen interest in all that promoted the improvement or well-being of the employés of the firm.

ST. JULIEN LE PAUVRE, PARIS.

SIR,—It will interest your readers to know that the Church of St. Julien le Pauvre, in Paris,* is not to be destroyed. It is under the protection of the Ministry of Fine Arts, and is to be restored by the Diocesan Architect as soon as funds are obtained. Amidst the distractions of the Exhibition I had but scanty time to discover and examine this building, probably the most ancient in the Cité. The west end is approached through a timber-yard, and close by lives the very intelligent custodian. Separated from this approach is a large open space on the north side of the church, also giving access. As far as I could see, the building is in excellent repair both inside and out, and full of interest. I would urge the young members of the profession who have time and opportunity to make careful sketches before the restorer begins his work. The nave has been reduced in length, and a pedimented front stuck in, but the north aisle exists and fragments of the entrance remain.

I bought of the custodian what seems a careful description and historical account of the church which I shall be glad to lend you if desired. I have not yet been able to study it myself, but observe it contains sketches and no plan except one of the district, which I imagine is well worthy of study.

J. W. WALTON-WILSON.

Shotley Hall, Northumberland,
August 10, 1889.

* Illustrated in *Builder* for April 27 of this year.

CONCRETE FLOORS.

SIR,—The articles by Mr. Frank Caws on the above subject (published in your issues of July 27 and August 3, and also the letter by Mr. Hyatt in your issue of last week) have been read by me with a peculiar interest.

It is now some years since I first began to make a special study of fireproof construction. Some three or four years ago (having collected all the data I could on the subject) I began experimenting with slabs of concrete. These slabs were 3 in. thick, and when two months old were tested with dead loads, and also for resistance to impact. The results proved conclusively that they would serve all weight-carrying purposes. The same slabs, after being subject to a severe fire for upwards of two hours, broke with very slight impact. The cement in all cases appeared to have lost its virtue, and become perished by the severe heat. These results led to the conclusion that no concrete having Portland cement as a matrix would retain its strength after a severe fire. I therefore determined to retain the Portland cement concrete as the load-carrying material, and to introduce, in place of the ordinary removable wood centering, a *permanent centering* made of fireclay or terra-cotta, which would protect the bottom (or tensional) side of the concrete, as well as the tensional flange of the joists from the action of fire.

Further experiments showed an advantage in keeping the protecting material from actual contact with the tensional flange of the joist and introducing an air current between the two,—*i.e.*, the heat (having penetrated the protecting material) as soon as given off was met by the cold air current, and so prevented from materially affecting the iron. I therefore decided to let the centering drop down well clear of the joist, and, by putting two air bricks in the external wall of each room, was able to introduce cold air into the hollow centering and distribute it over the entire ceiling between the joist and the protecting material; with this arrangement, the greater the heat the greater will be the rush of cold air to it, and it will require a very severe fire indeed to materially affect the iron.

I have read Mr. Hyatt's book (published in 1877), and find he mentions a new Portland cement of his own invention; the results of his experiments with the ordinary cement appear to coincide very much with my own, and his description of the exhaustive tests he has made are both interesting and valuable.

In spite of the long advocacy of the use of concrete in large thin slabs, we find very few architects caring to use it for floors that are subject to sudden impact; the same reason which has caused cast-iron girders to go out of use as a load-carrying material in floors, prevents the use of concrete in large slabs,—*i.e.*, its liability to collapse without giving a moment's warning. Not long ago I read a newspaper account which stated that the floor of a mill had fallen out, and knocked out every other floor down to the basement. Surely it is better to retain the joist (with all its evils) and protect it from fire in the best way we can, than run such risks as this.

MARK FAWCETT.

SIR,—In the papers by Mr. Caws, he states that the strength of concrete slabs is inversely as the linear dimensions, and directly as the square of the thickness, and he takes as the unit 1 ft. by 1 ft. by 1 in. thick, with a safe distributed load of 400 lb. Then he gives as an instance a slab 10 ft. by 10 ft. by 1 in. thick, and he makes the safe load on this 40 lb. per square foot.

Are we to understand that while 1 ft. by 1 ft. by 1 in. will carry safely 400 *lb.*, 10 ft. by 10 ft. by 1 in. will carry safely 4,000 *lb.*?

ARCHITECT.

SCAFFOLDING.

SIR,—In your last issue you give some description of a method of attachment in scaffolding. I beg to say that some ten years ago I devised a very similar contrivance (sketch of which I enclose), but in practice I find it, taking everything into

consideration, to have no advantage over good scaffold cord, and I therefore discarded it. The chief objections are:—(1) Weight in transport. (2) Non-adaptability in sizes. (3) Expense of manufacture. (4) Insecurity on account of flaws in material, which would give way without any warning. (5) It does not entirely dispense with cords. (6) Danger from them falling below by their awkward shape in handling. (7) No advantage in time worth mentioning over tying a cord, and the scaffold is not so rigid.

C. G. BALDWIN, Hampstead.

*** Mr. Baldwin's holder, of which he encloses a sketch, differs in detail from the one we illustrated, and does not look quite so strong, though the principle of grip is the same. The objections named, as resulting from a builder's practical experience, are important: at the same time we cannot help thinking that tying up with rope is a somewhat clumsy method for these scientific days.

The Student's Column.

WATER-SUPPLY.—VII.

PERCOLATION AND UNDERGROUND WATER.

THE value of a stratum for water-supply purposes does not altogether depend on the amount of moisture it absorbs. Clay, for example, contains enormous quantities of water, to which, in fact, it owes its plasticity, as can be easily ascertained by baking it, when the water is driven off. But this water is not available, as the clay retains it, and will not permit its free passage to any other rock, or into a well-boring, except in very small quantities. A stratum from which water is to be drawn must not only be absorbent, but capable of transmitting the fluid. This transmission is termed *percolation*, and the rocks permitting the action are known as *permeable*, *porous*, or *pervious*. Such rocks as clay, which do not allow water to freely pass through them, are known as *impermeable*, *non-porous*, or *impervious*. There is every gradation between pervious and impervious rocks, and it is of considerable importance in some instances to ascertain, if possible, the degree of permeability of an aquiferous deposit. Experiments have been made on different kinds of rocks with a view to finding this out, and, although they certainly give some idea of the method of percolation, yet we venture to think they have little or no practical value in enabling one to judge of the rate of yield. Laboratory experiments made on compact unfissured samples, or patches of ground constructed in imitation of nature, cannot possibly give reliable data of what happens on a very much grander, and very different scale, in nature. When *in situ*, rocks are usually traversed by innumerable joints and fissures, which both hold and transmit water freely in enormous quantities,—in fact their comparative frequency and size form a most important element in any underground water inquiry. The fissures act as conduits, and the success or failure of a well-boring may almost entirely depend on the intersection of some of these underground waterways by the boring, or headers driven out from it. Who can imitate these joints and cracks in making experiments?

Tables concerning percolation as deduced from experiment will be found, amongst other publications, in the "Minutes of Proceedings of the Institution of Civil Engineers," vol. xx. (1861), pp. 220-224; vol. xlv. (1876), pp. 28, 33-47; and in Professor Prestwich's new work on "Geology," vol. I., Chemical and Physical, and the student is referred to these for further information on the subject.

Professor Prestwich says that the value of beds as water-bearing strata is in direct ratio to their capacity of saturation, and in inverse ratio to their power of imbibition. Thus, although solid chalk and loose sands may hold the same quantity of water, the resistance to the free passage of it in the former is to the latter in the proportion of about 600 to 1.

As we have previously mentioned, the lithological character of a stratum, when traced over any considerable area or on going to any great depth in it, is liable to material change. It is truly astonishing how small a matter will seriously interfere with the free circulation of underground water. A sand bed, say 100 ft. in thickness, may develop a wide-spread parting of clay in the middle, a few inches thick, which holds up all the water above it, almost entirely depriving the lower half of the bed of moisture. Conversely, the clay parting may keep all the water in the lower half, depending on the circumstances of its outcrop or point of derivation of the supply. Again, a thick clay bed which had never been known to yield a drop of water throughout its entire thickness, may suddenly become an excellent source for small supplies, through the discovery of a sandy parting locally developed in it. Minute vertical and other cracks in a sandstone may for a few miles be filled with clay, the result of which, in hindering free percolation, or circulation of water, is only too apparent. Such a formation as chalk is exceedingly variable in structure, and here, apart from the consideration of fissures, we have an excellent illustration of the futility of experiments in arriving at the rate of percolation. We make an especial example of chalk, because its character as a water-bearing formation in N.W. Europe is well-known, and because a large proportion of experiments directly refer to it.

Chalk is a limestone largely made of the broken shells of very lowly organisms known as foraminifera. It varies in thickness, according to position, from a few feet up to as much as 1,152 ft. (under Norwich). In its upper half it contains lines of flints a few feet apart from each other, which, as a rule, are missing from the lower portion. It is fissured in every direction, but vertical and horizontal jointing are most prevalent. Sometimes the rock is very soft, and at others it is hard enough for building purposes,—the Totternhoe stone. The continual percolation of water, amongst other things, has very considerably modified its structure, in that its contained acids have attacked the lime of the chalk, and removed a considerable bulk of the rock. Of the material so removed more anon. The general effect of the removal, so far as the deposit is concerned, is to enlarge joints and fissures, and to leave beds or streaks of insoluble matter, almost impervious to water, behind. The lower portions of the great chalk formation contain so much marly matter, and the rock altogether is so much more compact, that it frequently acts as an impervious barrier, more or less holding up the water in the upper half of the deposit. The practical result of all this alteration is that nothing short of actual experience in a district, in the first instance, can be of much assistance,—experiments at home are of no use.

Speaking generally, it may be said that sandstones absorb more water than limestones, but the latter is more available as a water-bearing rock, it being far more cracked and fissured.

Many rocks which are described as impermeable,—such, for instance, as hard slate, schist, &c.,—are not in reality proof against absorption. It is true their *substance* is practically impervious, but a considerable quantity of water soaks into the cracks and joints invariably found in them, and although this may not, for pecuniary reasons, be available for supply, yet the fact should by no means be overlooked in considering the quantity of water liable to be wasted in a gathering-ground. Let us endeavour to put the case more clearly.

Suppose we have two gathering-grounds of equal area, equal rainfall, the rocks in each being impervious from an experimental point of view, and similar in every other respect, only that in the one area we have clay, and in the other slate or schist. In measuring the quantity of water flowing from the two basins (apart from evaporation), it would be found that the clay ground yielded the greater amount, because it acts as a sort of puddling, whilst the jointing in the slates or schists, on the contrary, cause leakage, as already stated. We give this as an illustration of the term "impermeability," which, as we see, has only a relative and not an absolute meaning. The substance of a small sample of the rock may be impermeable, but as a stratum it may hold and freely transmit large quantities of water.

In the majority of places, rocks are permeated with water below a certain limit, which latter is termed the *water-level*. The level may be near the surface of the ground, or at some depth, and may be liable to variation in different parts of the year, owing to dry and wet seasons, &c. Variation from this cause is not usually so apparent when dealing with a thick aquiferous deposit at considerable depth and distance from points of derivation, or which does not depend on its supply immediately from rain, as with a small supply comparatively nearer and in direct communication with the surface. Neither is the water-level usually horizontal at any time; inequalities in the surface of the ground have their effect upon it, as well as the character of the deposits concerned. For example, suppose we have a plain with a large dome-shaped hill rising out of it, all the rocks concerned being slightly porous, it is often found that the water-level in the hill roughly follows the dome-shaped outline, and although continuous with, it is sometimes nearly as much above the general water-level under the plain, as the hill is above the level of the surrounding country. In an undulating country the water-level is also undulatory. It sometimes happens, however, that owing to abstraction of water by artificial means, this rule does not hold good: we shall have occasion to refer again to this subject when treating of wells.

VARIORUM.

"Transactions of the St. Paul's Ecclesiological Society." Vol. II., Part IV. (London: Alabaster, Passmore, & Sons.)—This publication, which is an illustrated record of the proceedings of a young and vigorous society, contains several papers of interest, including, "Metal Grilles," by Mr. Starkie Gardner; "The Ecclesiology of Gottland," and "The Churches of Bornholm," both by Major Heales, F.S.A.; "The Orientation of Churches," by Mr. E. P. Loftus Brock, F.S.A.; and "The English Liturgical Colours," by Mr. W. H. St. John Hope, M.A. In this record of their proceedings, the members certainly get very good value for their annual subscription, which is only 7s. 6d.——"South Africa, and how to reach it by the 'Castle Line,'" by Edward P. Mathers, F.R.G.S. (London: Waterlow & Sons), is obviously a booklet with a special purpose,—that of informing the public all about Sir Donald Currie & Co.'s well-known line of Royal mail steamers to Cape Colony and Natal; but it contains a great deal of interesting and useful information about the South African colonies,—their people, climate, mineralogical and other resources, commerce, &c., and as such it will be found to be a very useful work of reference altogether apart from its special purpose.——Bemrose's "Guide to Paris" (London: Bemrose & Sons; Paris: Galignani), contains a good deal of information for a shilling, and is conveniently and systematically arranged for reference. It must not be trusted as an authoritative guide about the ancient buildings, but it will probably meet the needs of "the average tourist," for whom it is written.——From Mr. Elliot Stock, the publisher, we have received Part I. of the "Index to the First Volume of the Parish Registers of Gainford, in the county of Durham." This part includes the baptisms between 1560 and 1784.——"The County Councillor's Directory" (London: *Contract Journal* Office, Salisbury-court, Fleet-street), is a useful compilation, though not so useful or complete as it might be made. It purports to contain lists of the aldermen and councillors, with addresses, for all counties and county boroughs under the Act of 1888. While it is not free from such accidental errors and omissions as are inevitable in the production of such a work for the first time, there are some omissions which are evidently the result of design rather than accident. For instance, in some cases, the lists of chief officers of the Council are not as complete as they ought to be. Take the case of the London County Council, in connexion with which the only officials named are the Clerk of the Council and the Chief Engineer; but surely the Architect, the Solicitor, the Chemist, and the Accountant (or, as he is now styled, the "Comptroller") are officials of sufficient importance to merit the record of their names. By the filling-up of such omissions as these, and by the provision of an appendix containing at least a *résumé* of the Local Government Act, 1888, this directory might, we think be made increasingly useful in future editions.

Acock's Green.—A stained-glass window has just been presented to the parish church, Acock's Green, by Miss Hodgkins, of Olton. It consists of three lights and tracery, the former illustrating Agur's prayer "Give me neither poverty nor riches" and also the verses "She openeth her mouth with wisdom, and in her tongue was the law of kindness," and "Whoso walketh uprightly shall be saved," and in the latter is a figure representing Charity with lilies in the cusps of the cinquefoil. The inscription is as follows:—"This window was erected by Sarah Hodgkins to the glory of God and in memory of Henry Jutson, Mary Jutson her mother, and Joseph and John Hodgkins her brothers, July, 1889. The window has been carried out by Messrs. Winfields, Limited, of Birmingham and London.

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

12,470, Framing Doors, Windows, &c. G. L. Falconer.

According to this invention, window-jambs are constructed of brick or similar material, and are made hollow to provide spaces for the balance-weights which work the sashes, and so obviate the use of wooden boxing in the frame. Metallic slides, treated so as to be non-oxidisable, replace the slips and parting-beads usually of wood. Metallic finishings and window-boards are added, and, lapped over a narrow weathered and throated slipping on the freestone is a metallic covering for the sill. A metal bead also covers the joint of the upper or outer sash. Another provision is for the sash-cords to be carried over graduated pulleys secured to wooden blocks on the under-side of lintel.

13,059, Wall Blocks. W. Jarvis.

Instead of driving wooden plugs into brick or stone walls, to which woodwork may be affixed, these blocks or plugs, of a peculiar shape, are built into the wall when made, or afterwards inserted. They are made of various shapes of concrete, or preferably of Portland cement and breeze mixed in a liquid state and poured into moulds and then dried hard. The blocks have dovetailed projections on each side, which serve to keep the block in place, binding it firmly in the wall. A longitudinal recess is undercut on one or both sides of the front face, and into this is inserted a piece of wood or blocking-piece fixed by means of a wooden strip or wedge. Other provisions are made for fixing wood-blocks into the concrete sockets. Holes are made in the wooden blocks, which are filled up by concrete, or small holes are made in the concrete to allow of the wooden blocks being fixed by nails.

13,170, Opening and Closing Fanlights. J. Kaye.

This invention is intended to obviate the use of strings in actuating fanlights, &c. Instead of a worm-wheel and quadrant, or such-like gearing, a rod and tube is affixed, which is both effective and sightly in use.

18,771, Fire-proof Building Construction. W. Millar and others.

The invention relates to the use of materials suited to the fireproof construction of edifices, and is particularly applicable to the walls, partitions, and floorings of fire-proof buildings. Hollow blocks, slabs, or bricks of concrete are made of special composition. These are cast in moulds, pressed (a movable core being used for hollow blocks), and are used in building for walls, partitions, roofs, &c. Every part of the building is thus protected by refractory materials from the action of the flame, the hollow spaces also tending to prevent over-heating.

235. Smoke-preventing Appliance. C. H. Johns.

According to this invention, an iron plate or pipe is used in which is an opening closed by an iron door on hinges. This plate is inserted in the side of the chimney above the fire-place. The door of the opening holds a gas-burner on the inside, the pipe of which, passing through the door, can be connected by a piece of gutta-percha tubing to the nearest gas-supply. The action of the light and heat of this gas-jet is to cause an up-draught and prevent smoke being blown back into the room.

12,713, Construction of and Fixing Windows. T. Sharples and G. Graham.

The bottom rail of each sash, made in accordance with this invention, is hinged or pivotted to the frame, and stays are attached at one end to the sash stile, being fixed at the other end to the frame. These stendy the window in any position when open. A spring is sometimes used instead of the stay, and then a rack and catch are attached to the frame, by which it may be kept open to any extent desired. When closed, the sash is secured by a catch or ordinary fastener, or by an oblong strip hinged to the frame, which, closing up against the sash-stile, prevents it from being opened from the outside. Ventilation is provided even when the window is closed, by apertures in the sash-stiles, rails, or framing. These apertures when not in use are closed by means of slides or hinged lids.

NEW APPLICATIONS FOR PATENTS.

July 29.—11,985, De Pennefather, Ventilating Rooms, &c.

July 30.—12,053, F. Abbey, Fire Ranges or Grates.

July 31.—12,126, J. & A. Duckett, Water-closets.—12,147, C. Darrah, Pedestal Water-closets.—12,179, J. Willcocks and J. Harrison, Bolt Fasteners for Sashes, Casements, &c.—12,180, J. Willcocks and J. Harrison, Sash Fasteners.

Aug. 1.—12,199, W. Shillingford and G. Timberlake, Automatic Stop for Heavy Gates and Doors, the stop falling out of sight when the gate is open.—12,213, J. Haskins, Wooden Revolving Shutters, &c.—12,232, E. Olander, Floor Plates and Floors for Bridges, Buildings, &c.

Aug. 2.—12,257, A. Illidge, Sash Fasteners.—12,263, Barnett & Co., Sash Fasteners.—12,269, J. Todhunter, Window Fastenings.—12,292, R. Condy, Compound to be Used in Paint or Pigment.—12,306, R. Swales, Flushing Apparatus for Water-closets.

Aug. 3.—12,333, E. Kerry, Heating Greenhouses, &c.

PROVISIONAL SPECIFICATIONS ACCEPTED.

2,469, L. Schlentheim, Artificial Stone and Stone-work.—6,418, J. Harris, Waste Fittings for Closets, &c.—8,513, T. Hughes, Construction and Decoration of Buildings.—9,593, J. Lord and W. Heyes, Water-closets.—9,666, E. Nunan, Base or Foundation for Plastering, &c.—10,120, S. Wormald, Rising and Falling Hinges for Doors, &c.—10,134, E. Shaylor, Window-sash Fastenings.—10,369, H. Girdwood, Ventilating Appliance.—10,677, J. Marston, Spining and Closing Fanlights, &c.—10,824, J. Brunton and L. Griffiths, Apparatus for Mixing Materials for Artificial Stone, &c.—11,244, J. Kaye, Securing Casement Windows, &c.—11,462, J. Gilligan and A. Tilney, Preventing Smoke in House Grates, &c.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to Opposition for Two Months.

12,540, J. Mason, Skylights, Ventilators, &c.—10,541, J. Cook, Water-closet Apparatus.—12,668, J. Taylor, Stench-trap for Sewers, &c.—14,358, W. Bishop, Slow Combustion Stoves.—4,554, R. Von Schmitz and G. Heymeier, Cutting Tool for Wood-working Machinery.—6,123, W. Ramsbottom, Flushing the Basins of Water-closets.—7,056, J. Preston, Window Lock.—7,790, A. Cassard, Portable Water-closets, &c.—8,482, J. and A. Duckett, Water-closets, &c.—9,628, J. Holland, Apparatus for Water-closets, Lavatories, &c.—10,320, S. Perman and J. Heighton, Chimney Terminals and Ventilating Tops.

RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

JULY 30.—By CHINNOCK, GALSWORTHY, & Co. (at Leighton Buzzard).

Part of the Liscombe-park Estate—Numerous cottages and small enclosures of land realised £1,416

AUG. 6.—By DEBENHAM, TEWSON, & Co.

Limehouse, Maroon-st.—F.g.r. of £15 p.a., reversion in 95 yrs. 300

AUG. 7.—By ALFRED SAVILL & SON.

Oxford, Chalford—"The Manor" and "Chalford Farms," f., containing 446a. 3r. 19p. 12,000

By Messrs. CRONK.

Surrey, Tatsfield—Five plots of f. land 60

By BAXTER, PAYNE, & LEPPER.

Kent, Hayes—Enclosure of meadow land, 2a. 0r. 25p. 1,360

AUG. 8.—By NEWBON & HARDING.

Clapton—24, Avenue-rd., u.t. 65 yrs., g.r. £5, r. £5 p.a. 235

Canonbury—19, Grange-rd., u.t. 47 yrs., g.r. £9, r. £67. 10s. p.a. 640

New Southgate—1, Melrose Villas, f., o.r. £28 p.a. 245

Hammersmith—28 and 30, Studland-st., u.t. 75 yrs., g.r. £8, r. £60 p.a. 575

St. Luke's—12 and 14, Central-st., f., r. £54. 12s. p.a. 535

Limehouse—1, St. Anne-st., and 148, Eastfield-st., u.t. 33 yrs., g.r. £6. 10s., r. £37. 6s. p.a. 100

By DOWSETT & Co.

Beckenham—Two residences in Lennard-rd., u.t. 88 yrs., g.r. £16. 10s. p.a. 745

By C. A. RICHARDS.

Walworth—83, East-st., f., r. £56 p.a. 800

G.r. of £8 p.a., reversion in 5 yrs. to o.r. of £70 p.a. 400

AUG. 9.—By G. A. WILKINSON.

Walworth—82 and 84, Olney-st., u.t. 36 yrs., g.r. £9 8, Montpelier-street, u.t. 26 yrs., g.r. £4. 10s., r. £42. 18s. p.a. 205

Battersea—35 and 37, Kennard-st., u.t. 79 yrs., g.r. £11, r. £58. 10s p.a. 260

Streatham—1 and 2, Stockfield-rd., u.t. 94 yrs., g.r. £10, o.r. £72 p.a. 300

By A. RICHARDS.

Tottenham—Cliffe Villa, u.t. 77 yrs., g.r. £13. 2s. 6d. o.r. £40 p.a. 280

By NEWBON & HARDING.

Paddington—33, Hampden-st., u.t. 55 years, g.r. £5., r. £32 245

Holloway—534 and 536, Caledonian-rd., u.t. 52 yrs., g.r. £4, r. £118 p.a. 1,180

161, Caledonian-rd., u.t. 52 yrs., g.r. £7, r. £40 p.a. 340

1, Penn-rd., u.t. 52 yrs., g.r. £2, r. £36 p.a. 280

154, Hornsey-rd., u.t. 53 yrs., g.r. £6, r. £55 p.a. 715

46, Hampden-rd., u.t. 79 yrs., g.r. £6, r. £36. 6s. p.a. 150

By L. FARMER.

Kilburn—The Residence "Heathfield," u.t. 60 yrs., g.r. £15, o.r. £120 915

Brondesbury—17, Dyne-rd., u.t. 93 yrs., g.r. £7. 10s., o.r. £50 p.a. 495

[*Contractions used in this list.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; o.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; yd. for yard, &c.]

MEETINGS.

SATURDAY, AUGUST 17.

Architectural Association.—Annual Excursion: King's Lynn (last day).

Glasgow Architectural Association.—Visit to Rowallan House, near Kilmarnock.

TUESDAY, AUGUST 20.

Glasgow Architectural Association.—Visit to the Municipal Buildings, George-square, 6.15 p.m.

WEDNESDAY, AUGUST 21.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting. 8.30 p.m.

Miscellanea.

Progress of St. Louis, U.S.A.—According to a recent report of the British Vice-Consul at St. Louis, "the assessed value of real estate in 1888 increased by 2,232,538*l.* over that of the preceding year. The most notable buildings constructed during 1888 were:—The Liggett and Myers Stores, of granite, costing 180,000*l.*; the Odd Fellows' Hall of Missouri, granite, 90,000*l.*; the Laclede Building, 80,000*l.*; the Mercantile Library, of brick and granite, 80,000*l.*; the Lionsperger Building, 70,000*l.*; the Bank of Commerce, 60,000*l.*; the Fagin Building, 50,000*l.* The Merchants Bridge and Terminal Company are building a new bridge in the northern portion of the city, about three miles north of the Eads Bridge. The new bridge will be a double-track steel structure, consisting of three spans of steel, each 518½ ft. long, and two approaches, each 425 ft. long. There are to be two channel spans of 500 ft. in width, and one of 300 ft., with a height of not less than 50 ft. above high-water mark."

Wages in La Rochelle.—According to a recent report of the British Vice-Consul at La Rochelle, containing, *inter alia*, much interesting information as to the social conditions of that part of France, the rate of wages in La Rochelle is relatively high, being more than is paid in more important towns inland. The average rates are for,—

"Cabinetmakers.....	3s.	0d.	per day.
Carpenters	3	0	"
Masons.....	3	7	"
Slaters	3	7	"

Almost all manufactured articles, such as boots and shoes, clothing, &c., are much dearer than in England, owing to protective duties. Every one who is not indigent pays a poll tax calculated at the value of three days' labour, also a tax in proportion to their rent. It is estimated that the direct and indirect taxes paid by the working classes amount to 10·8 per cent. of their earnings."

Proposed New Harbour Works at Copenhagen.—A Danish engineer, Herr J. P. Nielsen, has prepared sketches, diagrams, &c., for the new harbour and warehouses to be constructed at Copenhagen, and has applied for the concession. The *entrepreneur* states that the capital required will be subscribed; but no decision can be arrived at until the next session of the Danish Parliament.

The Swedish Granite Industry.—The export of granite from Sweden last year for paving purposes is valued at 109,000*l.*, as against 85,000*l.* in 1887. The largest quantities of stone come from the southern ports, the chief importer being Prussia, whence stone to the value of 70,000*l.* was shipped. The export to this country is valued at 7,500*l.*

The Carpenters' Company's Examination for Foremen and Clerks of Works.—On Tuesday, the 6th inst., at a meeting of the Court of the Carpenters' Company, the medals and certificates were distributed to the successful candidates by the Master, Lieut.-Colonel Banister Fletcher, J.P., F.R.I.B.A.

Electric Lighting in Formosa.—The acting British Consul at Tamsui, in a recent report on the trade of Tamsui and Kelung, mentions that "the new city of Tai-pei Fu, the capital of the island, is lighted by electricity, the apparatus being solely in charge of native officials."

New Suburb in Stockholm.—A syndicate has been formed in Stockholm which has purchased the well-known estate Djursholm, just outside the city, for a sum of 30,000*l.*, the intention being to build a villa suburb upon the site.

Appointment of a Diocesan Surveyor.—Mr. R. Lofthouse, architect, of Middlesbrough, has been appointed Diocesan Surveyor for the Archdeaconry of Cleveland, the diocese of York.

The S.S.C. Library Buildings, Edinburgh.—The scheme for the erection of new library buildings for the above Society having now been satisfactorily financed, contracts have been signed and a commencement made by Messrs W. & D. M'Gregor, Grindlay-street, to the foundations. The site is on what formed a part of the burial-ground of St. Giles', and, to get a good foundation, it has been found necessary to cover the entire area, to a depth of 2 ft. 6 in., with a solid mass of concrete,—the foundations of the main walls being on an average 7 ft. 6 in. broad by 4 ft. 6 in. deep, the rest of the walls being brought up to the level of Cowgate with brickwork built in Arden lime, the expense of the foundations alone amounting to close on 1,000*l.* The estimated cost of the entire scheme is nearly 26,000*l.*, made up as follows:—Cost of structure, including boundary and retaining walls, formation of street, work inside Parliament House, &c., 15,158*l.*; professional fees, 1,300*l.*; painting and fittings, 1,000*l.*; heating and lighting, 230*l.*; cost of site, 7,397*l.* 19*s.* The following are the successful contractors:—Mason work, Messrs. W. & D. M'Gregor, Grindlay-street, 7,716*l.*; carpenter and joiner work, Messrs. Beattie & Son, Fountainbridge, 3,729*l.*; plumber work, James M'Donald, Dundas-street, 809*l.*; plaster work, E. Condon, Rose-street-lane, 1,050*l.*; slater work, Rob. Graham, Castle-street, 69*l.*; steel and iron work, Messrs. Mather & Son, Fountainbridge, 1,000*l.* 10*s.*; concrete work, Stuart & Co., Torphichen-street, 337*l.*; glazier work, Messrs. Dickson & Walker, Frederick-street, 412*l.* Mr. Frank Bell will act as resident clerk of works. The schedules of quantities were prepared by Messrs. Brown & Walker, ordained surveyors, 30, Frederick-street, Edinburgh. Mr. James B. Dunn, 94, George-street, Edinburgh, is the architect.—*Scotsman.*

The City Surveyorship of Carlisle.—On Tuesday the Town Council of Carlisle, at their ordinary monthly meeting, proceeded to elect a City Surveyor, in succession to Mr. H. U. McKie, resigned. There had been seventy candidates, from whom the following three had been selected for final submission to the Council:—Mr. W. Howard Smith, Assistant to the Borough Engineer, Leeds; Mr. Middleton, Assistant Engineer, Birkenhead; and Mr. Wynne-Edwards, Assistant Engineer, Carlisle. The Council voted by ballot. On the first count it appeared that there had voted for Mr. Smith, 15; for Mr. Wynne-Edwards, 15; and for Mr. Middleton, 4. On a second ballot there voted for Mr. Smith, 21; and for Mr. Wynne-Edwards, 13. Mr. Smith was then declared duly elected. Mr. Smith, who had been in an adjoining room, was informed of the decision of the Council, the Mayor expressing a hope that the engagement would prove satisfactory to both parties. Mr. Smith expressed his gratitude to the Council for having appointed him, and added that he could only hope to devote the best of his abilities to the duties of the office in such a manner as to gain the approval of the Council and the citizens of Carlisle.—*Leeds Mercury.*

Death of Mr. John Rhind, Architect, Inverness. — The *Scotsman* announces the death, at Perth, whither he had gone for change of air and rest, of Mr. John Rhind, architect, Inverness. Mr. Rhind, who had been in practice in Inverness for more than thirty years, designed and carried out the erection of Moyhall, the seat of The Mackintosh, and Ardverike, the seat of Sir John Ramsden, two of the largest and most complete mansions in the Highlands, the latter mansion having cost over 32,000*l.* Many public buildings in Inverness, Forres, and throughout the North were also designed and carried out by him. For several years Mr. Rhind has been a member of the Inverness Town Council, and being a native of the town he took a deep interest in all that affected its progress and prosperity. He was unmarried, and little over fifty years of age.

Glasgow Architectural Association.—The usual monthly meeting of this Association was held last week, the Vice-President, Mr. Wm. Jas. Anderson, in the chair, when a paper on "Mohammedan Architecture in India," by Mr. George Mackenzie, was read in his absence. A short discussion, opened by Mr. Charles E. Whitelaw, followed, and at its close a vote of thanks was passed to the author. The Chairman referred to the lamented death of a member, Mr. Robert S. Symington, architect, Paisley, cut off at the very opening of what promised to be a successful professional career.

The English Iron Trade.—The English iron market shows a fairly large amount of activity, and a buoyancy which has been exceeded only in the most prosperous periods known, advances in nearly all departments being announced this week. The pig-iron market especially is very strong. A large business has been doing in the Glasgow warrant market, with quotations remarkably steady. Scotch makers have again put up their rates, the rise varying from 6d. to 2s. a ton, and they are easily obtaining the higher prices. Middlesbrough iron has gone up from 1s. to 1s. 3d. a ton, and even at the advance makers are unwilling to commit themselves. Advances varying from 1s. to 2s. are reported from Lancashire and the midland districts. The largest jump this week has been made by hematites in the north-west, where the rise is 2s. 3d., while on the east coast from 1s. to 1s. 6d. a ton more is quoted for hematite iron. The improvement in the finished iron market is general, higher rates having been declared varying from 5s. to 10s. a ton. The same tendency is observable in the steel market, the trade being most active, at an advance of not less than 5s. for rails and shipbuilding material. Fresh and important orders have been given out for ships, and the building of vessels is proceeding most briskly. Engineers are reaping an equally good trade.—*Iron.*

Photographers in Convention.—The Photographic Convention of the United Kingdom, which has in former years been successfully held in the principal provincial towns, will meet this year, from Aug. 19 to 24 inclusive, in St. James's Great Hall, Piccadilly. The programme includes an exhibition of pictures, lantern entertainments, papers on the science and art of photography, excursions, &c. The proceedings will be opened by a *conversazione* on Monday, Aug. 19, at 6.30 p.m.

Sale of Tiptree Hall Farm.—On Sept. 17 will be offered for sale, at the Mart, the Tiptree Hall estate, extending over 250 acres, and situated about four miles distant from Kelvedon, Essex. This is the property, originally of 130 acres, which was acquired by the late Mr. J. J. Mechi, who, besides rebuilding the house, laid out several thousand pounds in converting it into his celebrated model farm.

The Savoy Hotel.—We are asked to mention that "Ben Turner's patent regulating adjustable door-springs," made and supplied by Messrs. Smith & Turner, are used at the new Savoy Hotel, recently described in our columns.

PRICES CURRENT OF MATERIALS.

TIMBER.	£.	s.	d.	£.	s.	d.
Greenheart, B.G. ....ton	7	0	0	7	15	0
Teak, E.I.....load	12	0	0	14	0	0
Sequoia, U.S.....foot cube	0	2	8	0	3	0
Ash, Canada.....load	3	10	0	5	0	0
Birch ,, ...	3	10	0	6	0	0
Elm ,, ...	4	0	0	5	0	0
Fir, Dantsic, &c.	2	0	0	3	10	0
Oak ,, ...	3	10	0	4	10	0
Canada	5	10	0	7	10	0
Pine, Canada red	3	0	0	4	0	0
,, yellow	3	10	0	5	5	0
Lath, Dantsic.....fathom	4	10	0	5	10	0
St. Petersburg.....	5	0	0	6	10	0
Wainscot, Riga, &c.....log	3	15	0	4	5	0
Deals, Finland, 2nd and 1st...std.	9	0	0	11	0	0
,, ,, 4th and 3rd.....	7	0	0	8	15	0
Riga	7	0	0	9	0	0
St. Petersburg, 1st yellow	11	0	0	15	0	0
,, 2nd ,, ...	10	0	0	11	0	0
,, white	7	0	0	10	0	0
Swedish	8	0	0	16	0	0
White Sea	9	0	0	17	0	0
Canada, Pine, 1st	16	0	0	28	0	0
,, ,, 2nd	11	0	0	17	10	0
,, ,, 3rd, &c.	8	0	0	10	10	0
,, Spruce, 1st	9	0	0	11	0	0
,, ,, 3rd and 2nd	7	0	0	9	0	0
New Brunswick, &c.	6	10	0	8	10	0
Battens, all kinds	6	0	0	18	0	0
Flooring Boards, sq., 1 in., prepared, First	0	11	0	0	14	0
Second	0	8	0	0	10	6
Other qualities	0	5	6	0	7	2
Cedar, Cuba.....foot	0	0	4½	0	0	5
Honduras, &c.	0	0	4½	0	0	4½
Mahogany, Cuba	0	0	4½	0	0	5½
St. Domingo, cargo average	0	0	4½	0	0	4½
Mexican ,, ...	0	0	4½	0	0	4½
Tobasco ,, ...	0	0	5½	0	0	6
Honduras ,, ...	0	0	5½	0	0	6½
Box, Turkey .....ton	4	0	0	13	0	0
Rose, Rio.....	15	0	0	20	0	0
Bahia	14	0	0	18	0	0
Satin, St. Domingo .....foot	0	0	3	0	1	0
Porto Rico	0	0	2	0	1	3
Walnut, Italian	0	0	4½	0	0	6½

METALS.	£.	s.	d.	£.	s.	d.
Iron—						
Pig, in Scotland .....ton	45	11	0	0	0	0
Bar, Welsh, in London.....	5	5	0	5	10	0
,, ,, at works in Wales ...	4	15	0	5	0	0
,, Staffordshire, in London ...	5	10	0	6	10	0

METALS (*continued*).	£.	s.	d.	£.	s.	d.
Copper—						
British, cake and ingot..... ton	47	10	0	0	0	0
Best selected	48	10	0	0	0	0
Sheets, strong	56	0	0	0	0	0
Chili, bars	44	0	0	0	0	0
Yellow Metal.....lb.	0	0	5	0	0	5½
Lead—						
Pig, Spanish.....ton	12	13	6	0	0	0
English, com. brands	12	15	0	12	17	6
Tin—						
Straits.....ton	90	10	0	0	0	0
Australian	91	10	0	0	0	0
English Ingots.....	94	10	0	0	0	0
Zinc—English sheet .....ton	21	0	0	23	0	0
OILS.						
Linseed .....ton	20	17	6	21	5	0
Cocoanut, Cochin	36	10	0	37	10	0
Ceylon	23	10	0	0	0	0
Palm, Lagos	25	0	0	0	0	0
Rapeseed, English pale	31	5	0	31	10	0
,, brown	29	15	0	30	0	0
Cottonseed, refined	26	15	0	28	0	0
Tallow and Oleine	21	0	0	40	0	0
Lubricating, U.S.	5	0	0	8	0	0
,, refined	7	0	0	11	0	0
Tar—Stockholm .....barrel	1	4	6	0	0	0
Archangel	0	15	0	0	16	0

TENDERS.

[Communications for insertion under this heading must reach us *not later than* 12 *Noon on Thursdays.*]

ANGLESEY (near Gosport).—For the painting and decorating at Uxbridge House, for Mr. S. T. Blake. Mr. Wm. Yeardye, 30, High-street, Gosport, architect:—

A. M. Cave & Co., Gosport.....	£125 0 0
C. J. Lear & Son, Alverstoke	108 0 0
H. Pink, Gosport (accepted)	98 15 0

AUDENSHAW.—For the erection of warehouse and offices for the Audenshaw Paint and Colour Company. Mr. J. H. Burton, architect, Warrington-street, Ashton-under-Lyne:—

W. Clough, Ashton-under-Lyne.....	£495 0 0
Jos. Lowe, Hooley Hill	487 17 7
Jabez Gibson, Dukinfield.....	445 0 0
Z. Pike, Hooley Hill	433 18 0
Underwood & Bro., Dukinfield	424 0 0
R. H. Booth, Stalybridge	422 0 0
C. Wallworth, Gorton	400 0 0
Jos. Davison, Manchester.....	399 0 0
John Robinson, Ashton-under-Lyne ...	379 0 0
J. Thornley, Hooley Hill.....	370 0 0
Allen Holmes, Ashton-under-Lyne* ...	365 0 0
H. Rowland, Ashton-under-Lyne	359 0 0

* Accepted.

BELLAGGIO (Surrey).—For the erection of a bungalow, for Mr. George Wood. Mr. Walter Graves, architect, Winchester House, E.C.:—

J. Mansbridge, Bellaggio (accepted)	£1,050 0 0

BIRKENHEAD.—For renovations, &c., to the late Welsh Baptist Chapel, Price-street, Birkenhead, to form same into a Salvation Army Fortress, for General Booth. Mr. J. Williams Dunford, architect and surveyor, 101, Queen Victoria-street, London, E.C.:—

J. Downham, Tranmere	£170 0 0
Messrs. Legge, Son, & Co., Birkenhead (accepted)	134 6 0

BLAINA (Mon.).—For the erection and completion of Salvation Army Barracks, Blaina (Mon.), for General Booth. Mr. J. Williams Dunford, architect, 101, Queen Victoria-street, London, E.C.:—

T. Morgan, Cardiff (accepted).....	£615 0 0

CHATTERIS (Cambs).—For the erection and completion of Salvation Army Fortress in Chatteris, Cambs, for General Booth. Mr. J. Williams Dunford, architect and surveyor, 101, Queen Victoria-street, E.C.:—

J. Feast, Chatteris.....	£430 4 3
T. Clarke, Chatteris	421 13 6
F. J. Coxhead, Leytonstone.....	405 0 0
R. Shanks, Chatteris (accepted).....	340 0 0

CREWE.—For alterations and additions to Methodist Chapel, Market-terrace, Crewe, to form same into a Salvation Army Barracks, for General Booth. Mr. J. Williams Dunford, architect and surveyor, 101, Queen Victoria-street, E.C.:—

A. Martin, Battersea	£375 0 0
F. J. Coxhead, Leytonstone (accepted)	550 0 0
T. Bereton, Crewe (too late)	525 5 0
J. T. Gresty, Willaston (too late)	525 0 0

DEPTFORD.—For erecting coffee-tavern and hall at Deptford, to be given for public benefit by Mr. E. J. Preston. Mr. Thomas Dinwiddy, architect. Quantities by Mr. W. E. Stoner:—

Killby & Gayford.....	£2,470 0 0
Kirk & Randall.....	2,250 0 0
Morter.....	2,219 0 0
Rider & Son	2,158 0 0
Kennard Bros.	2,115 0 0
Holloway	1,950 0 0
Leng	1,842 0 0

DEPTFORD.—For alterations and additions to Wesleyan Chapel, Deptford, to form same into a Salvation Army Citadel, for General Booth. Mr. J. Williams Dunford, architect and surveyor, 101, Queen Victoria-street, London, E.C.:—

A. & W. Garner, Peckham.....	£1,630 0 0!
W. & H. Castle, Borough	1,647 0 0
A. Martin, Battersea	1,397 0 0
F. J. Coxhead, Leytonstone	1,024 0 0
T. Morgan, Wood Green.....	800 0 0
Doubleday & Son, Kingsland *.....	780 0 0!

* Accepted.

EALING.—For making good part of damage caused by fire at 30, High-street, for Mr. S. Dyer. Mr. G. Ashby Lean, architect and surveyor, 41, Broadway, Ealing, W.:

T. Nye, Ealing.....	£160 0 0
H. & A. J. Jones, Ealing	149 0 0
T. H. Adamson & Sons, Ealing	148 10 0
A. Bailey, Ealing (accepted)	140 0 0

COMPETITION, CONTRACTS, & PUBLIC APPOINTMENTS.

Epitome of Advertisements in this Number.

COMPETITION.

Nature of Work.	By whom Required.	Premium.	Designs to be delivered.	Page.
Elevation of Front of New Post-Office	Hertford Poor's Est. Trus	£25 and £5	Sept. 9th	i.

CONTRACTS.

Nature of Work, or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.	Page.
York Stone	Folkestone Corporation	A. W. Conquest	Aug. 20th	x.
W.C.'s and Re-roofing Corridors	Lambeth Guardians	*Official*	Aug. 21st	x.
Pipe Sewer	Clerkenwell Vestry	Wm. Ison	Aug. 22nd	ii.
Engines, &c., for Water Supply	Hants County Asylum	E. J. Hildred	do.	ii.
Erection of House	Gloucester County Asy.	*Official*	Aug. 24th	ii.
Roadmaking Works	Hornsey Local Board	T. de Courcy Meade	Aug. 26th	x.
Brick storm-water Sewer, &c.	do.	do.	do.	x.
Sewerage Works	Margate U.S.A.	B. Latham	do.	x.
Painting Works	Croydon Union	F. West	do.	ii.
Kerbing and Channelling Works	Wandsworth Bd. of Wks	*Official*	Aug. 27th	ii.
Public Library, St. Martin's-lane	Com. of Public Libraries	Robt. Walker	do.	ii.
Painting and Repairs	City of London Union	*Official*	Sept. 2nd	ii.
Sewerage Works	Maldon Town Council	E. B. Grantham & Son	do.	ii.
Well-Sinking	Cromer Waterworks Co., Limited	J. C. Mellin	Sept. 3rd	ii.
Stoneware Pipe Sewer, &c.	Ware R.S.A.	Russell Austin	Sept. 9th	x.
Library Building	Chelsea Public Library Commissioners	J. M. Brydon	do.	ii.
Sewerage Works	Teddington Local Board	H. York	Sept. 16th	x.
Superstructure of Lunatic Asylum	London County Council	G. T. Hine	Sept. 28th	x.
Enlargement of Lunatic Asylum, Coulsdon	do.	C. H. Howell	Sept. 30th	x.
Erection of Buildings, &c.	Salvation Army	J. Williams Dunford	Not stated	x.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.	Page.
Borough Surveyor	Walsall Corporation	350*l.*	Aug. 20th	xvi.
Valuer	London County Council	1,000*l.*	Sept. 14th	xvi.

EASTBOURNE.—For the erection of new casual wards, stables, &c., at the Eastbourne Workhouse, for the Guardians of the Eastbourne Union. Mr. F. G. Cooke, architect, 3, Hyde-gardens, Eastbourne. Quantities by Mr. A. T. Cooke, 6, Guildhall-chambers, London, E.C.:—

Jas. Peerless	£2,190 0 0
C. Tomkinson	2,028 12 0
W. Backhurst	1,950 0 0
E. Cornwell & Son	1,946 0 0
Huggett & Pattenden	1,935 0 0
Staabridge & Tupper	1,919 0 0
Rollason Bros.	1,897 0 0
Jas. Coster (accepted)	1,820 0 0

All of Eastbourne.
[Architect's estimate, £1,900.]

EAST DEREHAM.—For supplying and laying about 4,300 square yards super. of artificial stone pavement, with stone kerbing, granite channelling, &c., for the Local Board. Mr. F. W. Skipper, surveyor:—

Blyth, Foulsham, Imperial Stone	£2,433 9 5
Patent Paving and Construction Company, Metallic Paving	2,420 4 3½
R. Homan, London, Granite Slabs	2,189 4 3
Stuart's Granolithic Company, Paving	2,142 0 9
G. Bell, Croft Admant	1,998 5 9
Victoria Stone Company, Victoria Stone	1,971 7 7
J. Nowell, Dereham, Silicated Concrete	1,947 6 3
Imperial Stone Company, Imperial Stone	1,763 2 3
R. Mayes, Dereham, Jones' Annealed Flag Paving	1,731 6 10
W. D. Hubbard, Dereham, Imperial Stone*	1,725 17 4½
Patent Indurated Stone Company's Paving	1,617 7 11
Lewis, Griffiths, & Co., London, Indurated Stone	1,493 10 1

* Accepted.

FARNWORTH.—For the erection and completion of citadel buildings, in Farnworth, for General Booth. Mr. J. Williams Dunford, architect and surveyor, 101, Queen Victoria-street, London, E.C.:—

G. Haywood & Son, Bedford	£1,775 0 0
F. J. Coxhead, Leytonstone	1,539 0 0
Taylor Bros., Farnworth (accepted)	1,300 0 0

FREEMANTLE (Hants).—For carrying out the Freemantle Main Sewerage, for the Shirley and Freemantle Local Board. Mr. H. J. Weston, Assoc. M.Inst.C.E., Engineer to the Board. Quantities by Mr. J. H. Blizard, Assoc. M.Inst.C.E., Lansdowne House, Southampton:—

L. Bottoms, London	£21,750 0 0!
W. Gibson, Exeter	17,550 0 0
C. J. Slade, Maidstone	16,700 0 0
J. MacKay, Hereford	14,645 1 11
J. W. & J. Neave, Leytonstone	13,689 0 0
Morgan, Isted, & Morgan, Southampton	13,487 0 0
J. T. Whettam, Weymouth	13,400 0 0
W. R. & G. Light, Portsmouth	13,298 0 0
J. Pickthall & Son, Merthyr Tydvil	12,941 0 0
G. Osenton, Westerham	12,882 0 0
R. G. Perkins, Lymington	12,733 9 9
W. Cunliffe, Dorking	12,228 0 0
T. P. Hall, Portsmouth	12,008 0 0
J. Dickson, St. Albans	12,000 7 2
J. W. Roe & Co., Southampton	11,700 0 0
H. J. Sanders, Southampton*	10,980 0 0!

* Accepted.
[Surveyor's protecting tender, £11,750].

GOSPORT.—For exterior alterations to the Bank, High-street, Gosport, for Messrs. Grant, Maddison & Co., Limited. Mr. Wm. Yeardye, 33, High-street, Gosport, architect:—

C. Jupe, Gosport	£177 0 0
J. Croad, Gosport	169 10 0
W. Lowe & Son, Gosport (accepted)	121 0 0

HOLLESLEY BAY (Suffolk).—For additional wing to the Colonial College. Messrs. John Giles, Gough, & Trollope, architects:—

Smyth Aldebrugh (accepted)	£2,685 0 0

LEEDS.—For the erection and completion of Citadel Buildings, for the Salvation Army in New Wortley, Leeds. Mr. J. Williams Dunford, architect and surveyor, 101, Queen Victoria-street, London, E.C.:—

H. Cressey, Leeds	£1,146 0 0
F. J. Coxhead, Leytonstone*	1,600 0 0

* Accepted.

LITTLEPORT (Cambs).—For the erection and completion of Salvation Army Fortress, at Littleport, Cambs, for General Booth. Mr. J. Williams Dunford, architect, 101, Queen Victoria-street, London, E.C.:—

Thos. Summerlee, Littleport (accepted)	£348 0 0

LIVERPOOL.—For alterations, &c., to the Skating-rink, Pembroke-place, Liverpool, for the Salvation Army. Mr. J. Williams Dunford, architect and surveyor, 101, Queen Victoria-street, E.C.:—

Morgan, Wood Green (accepted)	£380 0 0

LONDON.—For completion of residence, 39, Earl's-court-square, for Mr. J. Edmonds. Mr. W. Theobalds, architect, 26, Budge-row, E.C. Mr. B. Swinstead, surveyor, 22, Wellington-street, W.C.:—

Whitaker	£1,825 0 0
Staines	1,678 0 0
Burman	1,646 0 0
Stimpson	1,644 0 0
Leslie	1,636 0 0
Howard	1,560 0 0
Pocock, Wood-green (accepted)	1,573 0 0

LONDON.—For repairs to be done at the Licensed Victuallers' Asylum, Asylum-road, Old Kent-road. Mr. W. F. Potter, architect:—

S. Haywarth & Sons, Kingsland	£230 0 0!
G. Baber & Co., Milton-street, E.C.	228 7 0
W. Wells, Paddington	179 0 0
B. Cook, Stonecutter-street, E.C.	169 0 0
W. Wythe, Dalston	160 0 0
J. Walker & Sons, Poplar (accepted)	127 0 0!

LONDON.—For alterations and additions to Brownswood Park Hotel, Green-lanes, N., for Mr. J. Monro. Mr. E. R. Niblett, architect:—

Contract No. 1.

Flaxman	£740 0 0
J. Oldis	704 0 0
J. H. Thompson	649 0 0
S. Goodall	646 0 0
G. Veale	635 0 0
Dearing & Son	590 0 0
W. H. Evans	549 16 0
J. Walker (accepted)	538 0 0

LONDON.—For repairs to four houses, Underhill-road, Dulwich, for Mr. F. Baldero:—

Durrans	£119 0 0
Dorrell Bros.	113 0 0
T. Watson, Dulwich (accepted)	91 17 0

LONDON.—For alterations and additions to 70, 72, and 74, Old Kent-road, for Messrs. H. J. Searle & Son, Limited. Mr. A. R. Mullins, architect:—

W. Downs	£3,290 0 0
J. & J. Greenwood	3,200 0 0
Gover & Son	3,180 0 0
Patman & Fotheringham	3,173 0 0
Rider & Son	3,148 0 0
Higgs & Hill	3,088 0 0
W. & F. Crosher	3,063 0 0

LONDON.—For the erection of stabling for sixty-four horses, granary, harness-rooms, loose box, and man's rooms, for Messrs. Edward Cook & Co., East London Soap Works, Bow, E. Mr. Henry Poston, architect, 39, Lombard-street, E.C. Quantities by the architect:—

Sykes & Son	£3,589 0 0
W. Norton	3,120 0 0
A. Reed	2,923 0 0
J. Morter	2,727 0 0
Harris & Wardrop	2,723 0 0
J. Outhwaite & Son	2,587 0 0

LONDON.—For rebuilding premises and otherwise reinstating damage done by fire at the Imperial Saw Mills, Bow, E. Mr. Henry Poston, architect, 39, Lombard-street, E.C.:—

James Morter accepted on schedule of prices.

LONDON.—For sundry fittings at the International Headquarters of the Salvation Army, 101, Queen Victoria-street, for General Booth. Mr. J. Williams Dunford, architect and surveyor, 101, Queen Victoria-street, London, E.C.:—

Scheme A.

Martin, Battersea (accepted)	£237 3 7

Scheme B.

Coxhead, Leytonstone (accepted)	93 0 0

Scheme C.

Mannering, Adam-street, W.C.	232 15
Coxhead, Leytonstone	202 0 0
Martin, Battersea	192 0 0
Morgan, Wood Green	175 0 0

LONDON.—For extensive alterations and additions to the Salvation Army Temple, The Friars, Exeter, for General Booth. Mr. J. Williams Dunford, architect and surveyor, 101, Queen Victoria-street, London, E.C.:—

J. Westcott, Exeter	£1,995 0 0
F. J. Coxhead, Leytonstone	1,980 0 0
T. Morgan, Wood Green	1,900 0 0

LONDON.—For alterations and renovations to late Methodist Chapel, Jubilee-street, Stepney, to form same into a Salvation Army Fortress, for General Booth. Mr. J. Williams Dunford, architect, 101, Queen Victoria-street, London, E.C.:—

Wood, Tabley-road, N.	£276 0 0
Martin, Battersea	252 0 0
Coxhead, Leytonstone (accepted)	203 0 0

LONDON.—For alterations to No. 4, The Bon Marché, Upper Tooting, for the Balham Boot Company:—

T. Potterton, Balham (accepted)	£165 0 0

[Three estimates sent in.]

LONDON.—For building forcing-house at "Stoneleigh," Clapham-park:—

T. Potterton (accepted)	£175 0 0

LOWSMOOR (Worcester).—For alterations and additions to Salvation Army Barracks, Lowsmoor, Worcester, for General Booth. Mr. J. Williams Dunford, architect, 101, Queen Victoria-street, London, E.C.:—

T. Morgan, Wood Green (accepted)	£368 0 0

LYE (Worcestershire).—For the erection and completion of Salvation Army Fort and Fortress, at Lye (Wor.), for General Booth. Mr. J. Williams Dunford, architect and surveyor, 101, Queen Victoria-street, London, E.C.:—

Weale & Co., Ludlow (accepted)	£590 0 0

MANNINGTREE (Essex).—For the erection and completion of Salvation Army Fortress in Manningtree, Essex, for General Booth. Mr. J. Williams Dunford, architect and surveyor, 101, Queen Victoria-street, London, E.C.:—

Martin, Battersea	£540 0 0!
Gladwell, Walton-on-Naze	354 10 0
Coxhead, Leytonstone	347 0 0
Capon, Manningtree	337 13 6
Sargent, Great Clacton	320 0 0
Jarvis, Banbury (accepted)	249 0 0!

MILLOM (Cumberland).—For the erection and completion of Salvation Army fortress in Millom, Cumberland, for General Booth. Mr. J. Williams Dunford, architect and surveyor, 101, Queen Victoria-street, London, E.C.:—

W. Tomlinson, Millom	£785 17 9
W. Bradley, Millom	699 16 4
E. Mitchell, Millom (accepted)	625 0 0

NEW BROMPTON.—For alterations and additions to premises situate in Green-street, New Brompton, to convert same into a Salvation Army Fortress, for General Booth. Mr. J. Williams Dunford, architect and surveyor, 101, Queen Victoria-street, E.C.:—

Burrows & Son, Maidstone	£509 11 0
C. E. Skinner, Chatham	465 0 0
Haywood & Son, Bedford	398 0 0
F. J. Coxhead, Leytonstone	373 0 0
A. Martin, Battersea	360 0 0
E. Jarvis, Banbury	350 0 0
G. West, Strood (withdrawn)	343 0 0

ST. HELEN'S.—For alterations, &c., to the Theatre Royal, St. Helen's, for the Salvation Army. Mr. J. Williams Dunford, architect and surveyor, 101, Queen Victoria-street, London, E.C.:—

T. Morgan, Wood Green (accepted)	£480 0 0

SHORTLANDS (Kent).—For alterations and repairs at "The Vale," Shortlands, Kent, for Mr. H. J. Selby:—
J. Watson, Dulwich (accepted) £250 0 0
[No competition.]

STOURBRIDGE.—For alterations and additions to the Skating Rink, Stourbridge, to form same into a Salvation Army Barracks, for General Booth. Mr. J. Williams Dunford, architect, 101, Queen Victoria-street, London, E.C.:—

Cothead, Leytonstone	£783	0	0
Weale & Co., Ludlow	750	0	0
Tibbets, Halesowen	743	0	0
Martin, Battersea	740	0	0
Morgan, Wood Green (accepted)	585	0	0

STUBBINGTON.—For making and fitting new teak sashes and frames to the east front of Stubbington House, for Mr. M. H. Foster. Mr. Wm. Yeardye, 30, High-street, Gosport, architect:—

J. Crockerell, Landport	£325	0	0
J. Plummer, Fareham	225	0	0
W. Lowe & Son, Gosport	210	0	0
C. Wareham, Stubbington (accepted)	198	0	0

SYDENHAM.—For conservatory, vineries, &c., at Horner Grange, Sydenham, for Mr. Wm. Knight. (Contract No. 2.) Mr. J. Fogerty, F.R.I.B.A., architect. Quantities supplied by Mr. J. Rookwood:—

Messenger, Loughborough	£1,463	0	0
Lascelles, Bunhill-row (accepted)	1,460	0	0

THREE BRIDGES (Sussex).—For repairs, painting, &c., to station, for London, Brighton, and South Coast Railway Company. Mr. Fred D. Banister, engineer:—
Arthur M. Deacon & Co., West Norwood, S.E., and Hayward's Heath, Sussex (accepted) £329 0 0

WEDNESBURY.—For renovations, &c., to a theatre at Wednesbury, for General Booth. Mr. J. Williams Dunford, architect and surveyor, 101, Queen Victoria-street, London, E.C.:—
Messrs. Weale & Co., Ludlow (accepted) £250 0 0

WESTON-SUPER-MARE.—For erecting iron roof over new drill-hall, for 11th Battery 1st Gloucester Artillery Volunteers. Mr. Charles S. Leech, architect, Boulevard, Weston-super-Mare:—

	Original Tender.	Amended Tender.
Johnson Bros., & Co., Walsall	—	£436 15
C. Wood, Manchester	—	430 0
Isaac Dixon & Co., Liverpool	£267	298 10
T. W. Hellliwell, Brighouse	—	255 0
Dyne, Steel, & Co., Newport	—	220 0
John Lysaght & Co., Bristol	198	213 0
Redcliffe Crown Gal. Iron Co., Bristol (accepted)	172	201 0

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TO CORRESPONDENTS.

A. L. M. & Co.—"Architect" (all letters should be accompanied by name and address, whether for publication or not).—G. M. (there was only one style for ecclesiastical and secular buildings in Mediæval times, since only one style was known or practised at all. There is a distinction between the character of ecclesiastical and secular buildings, to a certain extent, arising out of difference of plan and arrangement of windows, &c.; but the details are the same, all that makes style is the same. Architects who profess to see any distinction between 'ecclesiastical Gothic and secular Gothic use the expressions very loosely; "Secular Gothic" seems in reality to be applied to Gothic of late date, when house-building had developed more than in earlier times, and a type of Mediæval house had grown up. But the style is the same; it is only a different application of it).—J. M.—J. S. & Son (we cannot go into the subject).—R. F.—M. & Sons (the fact that the original statement (which was not correct has been denied has been already mentioned).—C. H. & Sons (below our mark).—M. & C. (the material to which you refer has already been described in the *Builder*).—E. S. B. (received too late).—E. B. M.

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news-items) which have been duplicated for other journals, are NOT DESIRED.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; all communications relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

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Registered Telegraphic Address, "THE BUILDER, LONDON."

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PREPAYMENT IS ABSOLUTELY NECESSARY.

**** Stamps must not be sent, but all small sums should be remitted by Cash in Registered Letter or by Money Order, payable at the Post-office, Covent-garden, W.C. to
DOUGLAS FOURDRINIER, Publisher,
Addressed to No. 46, Catherine-street, W.C.

Advertisements for the current week's issue must reach the Office before THREE o'clock p.m. on THURSDAY, and for the front Page by the same hour on WEDNESDAY.

SPECIAL.—ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY mornings.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to Advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

PERSONS Advertising in "The Builder" may have *Replies addressed to the Office,* 46, Catherine-street, Covent Garden, W.C. *free of charge.* Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage.

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READING CASES, { NINEPENCE EACH. By post (carefully packed), 1s.

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W. H. Lascelles & Co.

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LASCELLES' CONCRETE.

Architects' Designs are carried out with the greatest care.

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